Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 06.07.88 Test oil : ISO 4113

Combination No. : 0 403 446 203

Injection pump

Pump designation : PES6MW100/720RS1163

EP type number : 0 413 406 152

Governor

Governer design. : RQV300...1100MW19

Governer no. : 0 420 083 014

Cust. part No. : 4843739

Customer—spec. information Customer : IVECO—OM Motor : 8365.25.500

Power KW : 132.4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 2.95
Tolerance mm : + 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 9-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance *NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.75

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 97.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	- Tolerance mm : +- 1.30
Check tolerance cm3/1000s. : 6.0	- FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 1100 Aneroid pressure hPa : 500
Rated speed rpm : 300	- Del. quantity - cm3/1000 strokes : 97.0
Rack travel in mm: 8.05 Tolerance mm: + 0.05 Del. quantity	- Tolerance - cm3/1000 strokes : +- 1.0 - Check tolerance
cm3/1000 strokes : 13.5 Tolerance	- cm3/1000s. : +- 3.0 - Spreed
cm3/1000 strokes : + 2.0 Check tolerance	Tolerance : 3.5
cm3/1000S. : + 4.5 Spreed Tolerance	- Check tolerance - cm3/1000S. : 6.0
cm3/1000 strokes : 3.5 Check tolerance	
cm3/1000s. : 5.5	CONTROL LEVER
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : 101.0 tolerance degree : +- 4.0
GUIDE SLEEVE TRAVEL	- RATED SPEED - rack travel mm : 12.70 - Rated speed rpm : 1145
Rated speed rpm : 1220 guide sleeve	Tolerance 1/min : +- 5
travel mm : 9.80 Tolerance mm : + 0.20	rack travel mm : 4.00 - Rated speed rpm : 1250 - Tolerance 1/min : +- 15
Rated speed rpm : 300 guide sleeve travel mm : 1.20	- rack travel mm : 0.50 - Tolerance mm : + 0.50
Tolerance mm : + 0.20	Rated speed rpm : 1300
Rated speed rpm : 500 guide sleeve	
travel mm : 3.00 - Tolerance mm : +- 0.30	- LOW IDLE
Rated speed rpm : 1140 guide sleeve	- control lever
travel mm : 8.80 Tolerance mm : +- 0.10	- position degree : 68.0 - tolerance degree : +- 4.0
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
+	Rated speed rpm : 100
control lever position degree : - 1 Rated speed rpm : 1100	- CRT mm min. :> 9.50 - Testing:

Rated speed rpm

300

Rack travel in mm:

16.50

rack travel mm	: 8.05	1
Folerance man		T
diki 5316 (520)	. *** 0.05	FUEL DELIVERY CHARACTERISTICS
TORQUE CONTROL		
Rated speed rpm	: 1100	Aneroid pressure
rack travel mm		+ hPa : 500
rack travel mm Tolerance mm	: + 0.05	Rated speed rpm : 700
TOTEL GILLE INTE	0.05	Del. quantity
Rated speed rpm	: 700	+ cm3/1000 strokes : 103.0
rack travel mm	: 14.65	† Tolerance
Tolerance mm	: + 0.05	cm3/1000 strokes : + 2.0
Data dans adams	. 050	+ Check tolerance
Rated speed rpm		+ cm3/1000s. : + 4.0
rack travel mm		Spreed
Tolerance mm	: ← 0.10	Tolerance
	4000	+ cm3/1000 strokes : 5.0
Rated speed rpm	: 1000	+ Check tolerance
rack travel mm Tolerance mm	: 13.80	+ cm3/1000s. : 7.0
Tolerance mm	: ← 0.10	†
		Ananaid processes
ANEDOTO (AL TITUDE		Aneroid pressure
ANEROID/ALTITUDE		+ hPa : -
COMPENSATOR TEST		Rated speed rpm : 500
		Del. quantity
		+ cm3/1000 strokes : 76.0
SETTING		+ Tolerance
		+ cm3/1000 strokes : +- 1.0
Rated speed rpm	: 500	+ Check tolerance
Pressure hPa	: 500	+ cm3/1000s. : +- 3.0
rack travel mm	: 14.65	†
Tolerance mm	: +- 0. 05	<u> </u>
Rated speed rpm	: 500	T STARTING FUEL DELIVERY
Pressure hPa		
rack travel mm		Rated speed rpm : 100
Tolerance mm		+ rack travel mm : 21.00
yoter arree man	0.05	+ Tolerance mm : +- 1.00
MEASUREMENT		Del. quantity
PIEASOREPIEWI		cm3/1000 strokes : 165.9
Pated speed spm	: 500	Tolerance
Rated speed rpm	: 500	+ cm3/1000 strokes : +- 5.0
Droceure FDs	: 270	Check tolerance
Pressure hPa	: 14.15	- cm3/1000s. : +- 8.0
rack travel mm		† cm5/10005. : +- 6.0
Tolerance mm	: +- 0.05	İ
Pressure hPa	: 200	1
rack travel mm	: 13.65	ļ
Tolerance mm	: + 0.15	+ LOW IDLE
1000.0.100 11211	• • • • • • • • • • • • • • • • • • • •	1
		Rated speed rpm : 300
Start interlock		+
		Rack travel in mm: 8.05
Rated speed rpm	: > 100	Tolerance mm : + 0.05
Rated speed rpm		→ Del. quantity
•		+ cm3/1000 strokes : 13.5
Check		+ Tolerance
speed 1/min	: > 80	+ cm3/1000 strokes : + 2.0
Check		- Check tolerance
speed 1/min	: < 250	+ cm3/1000s. : + 4.5
opoodmiii		1

Spreed

Tolerance cm3/1000 strokes : 3.5

Check tolerance cm3/1000s. : 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 05.12.89 Test oil : ISC 4113

Combination No. : 0 403 446 237

Injection pump

Pump designation : PES6MW100/320RS1119

: -4

EP type number : 0 413 406 174

Governor

Governer design. : RQV300...1400MW57-3

Governer no. : 0 420 083 199

Cust. part No. :

Customer-spec. information

Customer : VOLVO-TRUCK

Motor : TD 61-FHQ / GC

Power KW : 127.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke rm : 3.15Tolerance mm : $\leftarrow 0.05$

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance *NW : + 0.75

BASIC SETTING

Del. quantity

cm3/1000 strokes : 97.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 6.0

1	Aneroid pressure
Ţ	hPa : 600
Rated speed rpm : 300	Del. quantity
Park traval in m (80	cm3/1000 strokes : 97.0
Rack travel in mm : 6.80 + Tolerance mm : ← 0.10 +	Tolerance cm3/1000 strokes : +- 1.0
Del. quantity	Check tolerance
cm3/1000 strokes : 18.0	$cm3/1000s.$: \leftarrow 3.0
Tolerance + cm3/1000 strokes : + 2.0 +	Spreed
Check tolerance	Tolerance cm3/1000 strokes : 3.5
cm3/1000s. : + 4.5	Check tolerance
Spreed	cm3/1000s. : 6.0
Tolerance + cm3/1000 strokes : 3.5 +	
Check tolerance	**************************************
cm3/1000s. : 5.0	CONTROL LEVER
+	
(B) SETTING OF INJECTION PUMP	control lever position degree : 114.0
WITH GOVERNOR	tolerance degree : +- 4.0
+	_
GUIDE SLEEVE TRAVEL	RATED SPEED
GOIDE SLEEVE TRAVEL	rack travel mmm : 10.90 Rated speed rpm : 1445
Rated speed rpm : 1450	Tolerance 1/min : +- 5
guide sleeve	
travel mm : 8.50	rack travel mm : 4.00
Tolerance mm : + 0.10 +	Rated speed rpm : 1605 Tolerance 1/min : +- 15
Rated speed rpm : 300	Total dribe symmetric
guide sleeve	rack travel mm : 0.55
travel mm : 1.40 +	Tolerance mm : + 0.45
Tolerance mm : + 0.20 +	Rated speed rpm : 1725
Rated speed rpm : 550	
guide sleeve	
travel mm : 3.50	LOW IDLE
Tolerance mm : + 0.30	LOW IDLE
Rated speed rpm : 1600	
guide sleeve	control lever
travel mm : 9.70 + Tolerance mm : + 0.20 +	position degree : 66.0 tolerance degree : +- 4.0
Toterance in . + 0.20	toterance degree . +- 4.0
	Setting point w/out bumper spring
GUIDE SLEEVE POSITION +	0.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
1	Rated speed rpm : 100
control lever	CRT mm min. : > 8.50
position degree : -1	
Rated speed rpm : 1480	Testing:
Rack travel in mm: 16.50	Rated speed rpm : 300
Tolerance mm : + 1.30	rack travel man : 6.80
+	Tolerance mm : ← 0.10
FULL LOAD DELIVERY AT FULL LOAD CTOD	nool, through == 2,00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 2.00 Rated speed rpm : 570
Rated speed rpm : 1000	Tolerance 1/min : +- 30
the second secon	

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm	:	550
Pressure hPa	:	600
rack travel mm	:	11.95
Tolerance mm	: +	- 0.05

Rated speed rpm	:	550
Pressure hPa	:	-
rack travel mm	:	10.45
Tolerance mm	: +	-0.05

MEASUREMENT

Rated :	speed	rpm	:	550
---------	-------	-----	---	-----

Pressure hPa	:	470
rack travel mm	:	11.65
Tolerance mm	: +	- 0.05

Pressure hPa	:	330
rack travel mm	:	10.70
Tolerance mm	: +	- 0.10

Start interlock

Rated	speed	rpm	: >	100
Rated	speed	rpm	: <	270

Check

speed 1/min	: >	80
Check		
speed 1/min	: <	280

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	_
Rated speed rpm	:	1000
Del. quantity		
cm3/1000 strokes	:	76.0
Tolerance		
7/4000		. 1 1

	•	
Check tolerance		
cm3/1 00 0s.	: +-	3.0

STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		
cm3/1000 strokes	:	150.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance cm3/1000s.

: +- 13.0

LOW IDLE

LOW IDEC				
Rated speed rpm	:		300	
Rack travel in mm Tolerance mm Del. quantity	:	+-	6.80 0.10	
cm3/1000 strokes Tolerance	:		18.0	
cm3/1000 strokes Check tolerance	:	+	2.0	
cm3/1000s. Spreed Tolerance	:	+	4.5	
cm3/1000 strokes Check tolerance	:		3.5	
cm3/1000s.	:		5.0	

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.02.93 Test oil : ISO 4113

Combination No. : 0 403 456 117

Injection pump

Pump designation : PES6MW100/321RS1215 EP type number : 0 413 406 205

Governor

Governer design. : RQV250...1200MW83-2

Governer no. : 0 420 083 216

Cust. part No. : 3-7138

Customer-spec. information

Customer : MAN

Motor : 0 0326 LF 04

Power KW : 199.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. $^{\circ}$ C : 40 Tolerance $^{\circ}$ C : \leftarrow 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50Tolerance mm : $\leftarrow 1.50$

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-340

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity cm3/1000 strokes : 168.5

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : + 4.0

Spreed

Tolerance

cm3/1000 strokes : 4.0

	+	Check tolerance
Check tolerance		cm3/1000s. : +- 4.0
cm3/1000s. :	7.5	Spreed
	+	Tolerance
	+	cm3/1000 strokes : 4.0
	+	Check tolerance
Rated speed rpm :	250	cm3/1000s. : 7.5
Rack travel in mm :	5.60	
Tolerance mm :	+ 0.10	
Del. quantity	+	CONTROL LEVER
cm3/1000 strokes :	23.0	
Tolerance	+	control lever
cm3/1000 strokes :	+ 2.0 +	position degree : 128.0
Check tolerance	t	tolerance degree : +- 4.0
	+ 4.5	CATEL ORGE
Spreed Tolerance	†	RATED SPEED
cm3/1000 strokes :	3.5	rack travel mm : 12.60 Rated speed rpm : 1255
Check tolerance		Rated speed rpm : 1255 Tolerance 1/min : +- 5
cm3/1000S. :	5.5	roterance mant . · J
	Ţ	rack travel mm : 4.00
	1	Rated speed rpm : 1355
(B) SETTING OF INJE	ECTION PUMP	Tolerance 1/min : +- 15
WITH GOVERNOR	+	
	+	rack travel mm : 0.50
	+	Tolerance mm : +- 0.50
GUIDE SLEEVE TRAVEL	- +	Rated speed rpm : 1400
Dated apped non-	: 1250 +	
Rated speed rpm : guide sleeve	1250	
travel mm :	10.80	
	+ 0.20	LOW IDLE
roter drive many .	0.20	10W 10CC
Rated speed rpm :	250	
guide sleeve	+	control lever
travel mm :	1.40	position degree : 71.0
Tolerance mm :	+ 0.20 +	tolerance degree : +- 4.0
	+	
· · · · · · · · · · · · · · · · · · ·	800 +	Setting point w/out bumper spring
guide sleeve travel mm :	t 4 00	Pated aroad pre
·	+ 6.00 + + 0.10 +	Rated speed rpm : 150
Tolerance mm :	I	CRT mm min . > 7.50
	+	CRT mm min. : > 7.50
Rated speed rpm :	450	
	+	CRT mm min. : > 7.50 Testing:
Rated speed rpm : guide sleeve travel mm :	450	Testing: Rated speed rpm : 250
Rated speed ipm : guide sleeve travel mm :	3.50	Testing: Rated speed rpm : 250 rack travel mm : 5.60
Rated speed rpm : guide sleeve travel mm : Tolerance mm :	3.50 +- 0.30	Testing: Rated speed rpm : 250
Rated speed rpm : guide sleeve travel mm :	3.50 +- 0.30	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY	3.50 +- 0.30 AT FULL LOAD STOP	Testing: Rated speed rpm : 250 rack travel mm : 5.60
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm :	3.50 +- 0.30 AT FULL LOAD STOP	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure	3.50 + 0.30 AT FULL LOAD STOP	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure hPa : See the speed rpm : Tolerance mm : To	3.50 +- 0.30 AT FULL LOAD STOP	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10 rack travel mm : 2.00
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure hPa : Del. quantity	3.50 + 0.30 AT FULL LOAD STOP 1000	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10 rack travel mm : 2.00 ANEROID/ALTITUDE
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	3.50 + 0.30 AT FULL LOAD STOP 1000	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10 rack travel mm : 2.00
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes : Tolerance	3.50 + 0.30 AT FULL LOAD STOP 1000 1200 168.5	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10 rack travel mm : 2.00 ANEROID/ALTITUDE
Rated speed rpm : guide sleeve travel mm : Tolerance mm : FULL LOAD DELIVERY Rated speed rpm : Aneroid pressure hPa : Del. quantity cm3/1000 strokes :	3.50 + 0.30 AT FULL LOAD STOP 1000 1200 168.5	Testing: Rated speed rpm : 250 rack travel mm : 5.60 Tolerance mm : + 0.10 rack travel mm : 2.00 ANEROID/ALTITUDE

		+ Tolerance
Rated speed rpm	: 500 • 1200	cm3/1000 strokes : + 2.0 Check tolerance
Pressure hPa rack travel mm Tolerance mm	: 1200 : 13.65 : + 0.05	cm3/1000s. : +- 5.0
Rated speed rpm Pressure hPa	: -	Aneroid pressure hPa : -
rack travel mm Tolerance mm		Rated speed rpm : 500 Del. quantity
MEASUREMENT		cm3/1000 strokes : 78.0 Tolerance cm3/1000 strokes : +- 1.0
Rated speed rpm	: 500	Check tolerance + cm3/1000s. : + 3.0
Pressure hPa rack travel mm Tolerance mm	: 12.45	
Pressure hPa	: 200	+ STARTING FUEL DELIVERY
rack travel mm Tolerance mm	: 10.05 : + 0.50	+ Rated speed rpm : 100 + Del. quantity - cm3/1000 strokes : 80.0
		Tolerance + cm3/1000 strokes : + 10.0
FUEL DELIVERY CHA	RACTERISTICS	Check tolerance + cm3/1000s. : + 13.0
Aneroid pressure hPa	: 1200	
Rated speed rpm	: 600	
Del. quantity		LOW IDLE
Del. quantity cm3/1000 strokes Tolerance	: 176.0	LOW IDLE Rated speed rpm : 250
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 176.0 : ← 2.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : +- 0.10
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 176.0 : ← 2.0 : ← 5.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 176.0 : ← 2.0 : ← 5.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 176.0 : ← 2.0 : ← 5.0 : 6.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm	: 176.0 : ← 2.0 : ← 5.0 : 6.0 : 9.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 176.0 : ← 2.0 : ← 5.0 : 6.0 : 9.0 : 1200 : 800	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 176.0 : + 2.0 : + 5.0 : 6.0 : 9.0 : 1200 : 800 : 169.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 176.0 : + 2.0 : + 5.0 : 6.0 : 9.0 : 1200 : 800 : 169.0 : + 2.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 176.0 : + 2.0 : + 5.0 : 6.0 : 9.0 : 1200 : 800 : 169.0 : + 2.0 : + 5.0	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 5.5
Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes	: 176.0 : + 2.0 : + 5.0 : 6.0 : 9.0 : 1200 : 800 : 169.0 : + 2.0 : + 5.0 : 1200 : 1200 : 1200	Rated speed rpm : 250 Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000 strokes : 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.08.92 : ISO 4113

Combination No. : 0 403 456 118

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number : 0 413 406 190

Governor

Governer design. : RQV250...1200MW83-3

Governer no.

: 0 420 083 280

Cust. part No. : 3-7218

Customer-spec. information

Customer

: MAN

Motor

: D 0826 LF08

Power KW

: 169.0

TEST BENCH REQUIREMENTS

Inlet line

: 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve

: 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 COS

Opening pressure

bar

: 173.5

Tolerance bar

Test lines

: 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : + 1.0

Prestroke mm 3.55

: +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

: + 1.50 Tolerance mm

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Barrel no. :

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 13.25

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 149.0

Tolerance

cm3/1000 strokes : \leftarrow 1.0

Check tolerance cm3/1000s.	: +- 4.0	+ Aneroid pressure + hPa : 1000
Spreed		Del. quantity cm3/1000 strokes : 149.0
Tolerance cm3/1000 strokes	: 4.0	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Check tolerance cm3/1000s.	: 7.5	+ cm3/1000s. : +- 4.0 + Spreed + Tolerance - cm3/1000 strokes : 4.0
		Check tolerance cm3/1000s. : 7.5
Rated speed rpm	: 250	
Rack travel in mm Tolerance mm Del. quantity		CONTROL LEVER
cm3/1000 strokes Tolerance cm3/1000 strokes		control lever position degree : 124.0 tolerance degree : +- 4.0
Check tolerance		+
cm3/1000s. Spreed Tolerance		RATED SPEED + rack travel mm : 11.80 + Rated speed rpm : 1253
cm3/1000 strokes Check tolerance		+ Tolerance 1/min : +- 8
cm3/1000s.	: 5.5	+ rack travel mm : 4.00 + Rated speed rpm : 1335 + Tolerance 1/min : +- 15
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP	+ rack travel mm : 0.50 + Tolerance mm : + 0.50 + Rated speed rpm : 1400
GUIDE SLEEVE TRAV	EL	† Rated speed (pilk . 1400
Rated speed rpm guide sleeve	: 1250	
travel mm Tolerance mm		LOW IDLE
Rated speed rpm guide sleeve		control lever
guide sleeve travel mm Tolerance mm	: 1.40	+ position degree : 74.0 + tolerance degree : +- 4.0
		Setting point w/out bumper spring
Rated speed rpm guide sleeve		+ Rated speed rpm : 100
travel mm Tolerance mm	: 6.00 : +- 0.10	+ CRT mm min. :> 7.00
Rated speed rpm guide sleeve		+ Testing:
guide sleeve travel mm Tolerance mm	: 4.00	Rated speed rpm : 250
roterance mm	: T U.SU	Rated speed rpm : 250 rack travel mm : 5.50 Tolerance mm : + 0.10
FULL LOAD DELIVER	Y AT FULL LOAD STOP	Rated speed rpm : 375
Rated speed rpm	: 800	Ţ

		+ Check tolerance
TORQUE CONTROL	. 900	
Rated speed rpm rack travel mm Tolerance mm	: 13.25	Tolerance cm3/1000 strokes : 6.0 Check tolerance
Rated speed rpm		cm3/1000s. : 9.0
rack travel mm Tolerance mm	: 12.80 : + 0.10	Aneroid pressure
Rated speed rpm	: 1000	+ hPa : 1000 + Rated speed rpm : 1000
rack travel mm Tolerance mm		+ Del. quantity + cm3/1000 strokes : 146.0
Rated speed rpm	: 600 : 13.25	<pre>+ Tolerance + cm3/1000 strokes : +- 2.0 + Check tolerance</pre>
rack travel mm Tolerance mm	: + 0.05	cm3/1000s. : +- 5.0
ANEROID/ALTITUDE		Aneroid pressure
COMPENSATOR TEST		+ hPa : 1000 + Rated speed rpm : 600 + Del. quantity
SETTING		cm3/1000 strokes : 149.0 Tolerance
Rated speed rpm Pressure hPa	: 500 : 1000	cm3/1000 strokes : +- 2.0 Check tolerance
Pressure hPa rack travel mm Tolerance mm	: 13.25 : +- 0.05	- cm3/1000s. : + 5.0
Rated speed rpm Pressure hPa		Aneroid pressure hPa : -
rack travel mm	: 10.05	Rated speed rpm : 500 Del. quantity
MEASUREMENT		cm3/1000 strokes : 75.0 Tolerance
Rated speed rpm	: 500	cm3/1000 strokes : + 1.0 check tolerance
Pressure hPa	: 550	+ cm3/1000s. : +- 3.0
rack travel mm Tolerance mm		STARTING FUEL DELIVERY
Pressure hPa rack travel mm		Rated speed rpm : 100
Tolerance mm	: 	Del. quantity cm3/1000 strokes : 70.0
		Tolerance cm3/1000 strokes : +- 10.0
FUEL DELIVERY CH	ARACTERISTICS	+ Check tolerance - cm3/1000s. : +- 13.0
Aneroid pressure hPa	: 1000	-
Rated speed rpm Del. quantity		LOW IDLE
cm3/1000 strokes Tolerance	: 145.0	Rated speed rpm : 250
cm3/1000 strokes	: +- 2.0	+

Rack travel in mm Tolerance mm Del. quantity	:	+	5.50 0.10
cm3/1000 strokes	:		18.0
Tolerance cm3/1000 strokes	:	+-	2.0
Check tolerance cm3/1000s.	:	+-	4.5
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		3.5
cm3/1000s.	:		5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.92 : ISO 4113 Test oil

Combination No. : 0 403 456 124

Injection pump

Pump designation : PES6MW100/321RS1201

EP type number : 0 413 406 190

Governor

Governer design. : RQV250...975/1200MW1

: 28

Governer no. : 0 420 083 288

Cust. part No. : 3-7253

Customer-spec. information

Customer : MAN

Motor

: D 0826 LF08

Power KW : 169.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

bar 173.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar: 31.0 Tolerance bar : +- 1.0

Prestroke mm : 3.55 : ÷ 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm: \leftarrow 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm: 12.85

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 142.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

		1 .
Tolerance cm3/1000 strokes	: 4.0	† 'r
Check tolerance		_ } ;
cm3/1000s.	: 7.5	_
		+ :
Rated speed rpm	: 250	† '
Dool Assessed the second	5 50	+ 5
Rack travel in mo Tolerance mon	n: 5.50 :+- 0.10	‡ ;
Del. quantity	0.10	Į į
cm3/1000 strokes	: 18.0	1 6
Tolerance		+ 1
cm3/1000 strokes	: +- 2.0	+ (
Check tolerance		+ (
cm3/1000s.	: +- 4.5	† 9
Spreed Tolerance		+ 3
cm3/1000 strokes	: 3,5	Į,
Check tolerance	• 0.5	1 7
cm3/1000s.	: 5.5	1 (
		†
	HECTION DUMP	1.
(D) SETTING OF IN		
(B) SETTING OF IN	NOECLION FOMP	1 (
(B) SETTING OF IN	MECLION FOMP	+ (
	WECTION FUMP	+
		. + ,
WITH GOVERNOR GUIDE SLEEVE TRAN	/EL	. + ,
WITH GOVERNOR GUIDE SLEEVE TRAV	/EL	- + (+ t + t
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve	/EL : 350	+ + + + + + + + + + + + + + + + + + +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm	/EL	- + 0 + 4 + 1 + 1
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve	/EL : 350 : 2.30	· + ;
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm	/EL : 350 : 2.30 : ← 0.20	· + ;
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	/EL : 350 : 2.30 : + 0.20 : 1250	- + 1 + 1 + 1 + 1
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	/EL : 350 : 2.30 : + 0.20 : 1250 : 11.10	- +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	/EL : 350 : 2.30 : + 0.20 : 1250	- +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10	- +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050	- + + + + + + + + + + + + + + + + + + +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Rated speed rpm guide sleeve travel mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50	
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050	
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20	. + ,
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : + 0.20 : 1250 : 11.10 : + 0.10 : 1050 : 9.50 : + 0.20	
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650 : 4.50	· + + + + + + + + + + + + + + + + + + +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650	
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650 : 4.50 : ← 0.30	· · · · · · · · · · · · · · · · · · ·
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650 : 4.50 : ← 0.30	· + + + + + + + + + + + + + + + + + + +
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650 : ← 0.30 : ← 0.30 : 250 : 1.30	· · · · · · · · · · · · · · · · · · ·
WITH GOVERNOR GUIDE SLEEVE TRAN Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	/EL : 350 : 2.30 : ← 0.20 : 1250 : 11.10 : ← 0.10 : 1050 : 9.50 : ← 0.20 : 650 : 4.50 : ← 0.30 : 250	· · · · · · · · · · · · · · · · · · ·

Rated speed	, biii .		1270		
Rack travel	in mm :		11.4	10	
FULL LOAD DE	LIVERY	AT	FULL	LOAD	STOP
Rated speed Aneroid pres			800		
hPa	:		1000		
Del. quantit cm3/1000 str			142.	.0	
Tolerance cm3/1000 str	okes :	+-	1.	0	
Check tolera cm3/1000S. Spreed	nce :	+	4.	.0	
opreed Tolerance cm3/1000 str	okes :		4.	.0	
Check tolera cm3/1000s.			7.		
	•		' •		
CONTROL LEVE	ER				
control leve				_	
position deg tolerance de		+-	127. 4.		
RATED SPEED				. 0	
rack travel Rated speed	rpm :		11.4 1253		
Tolerance 1/	min :	+-		8	
rack travel Rated speed			4.0 1310	00	
Tolerance 1/		+-		15	
rack travel			0.5		
Tolerance mm Rated speed			0.9 1400	υ	
LOW IDLE					
control leve	r				
position deg tolerance de	iree .	4.	80. 4.		
Setting poir				sprii	ng
	rpm :		150		

GUIDE SLEEVE POSITION

: > 7.00	FUEL DELIVERY CHARACTERISTICS
	- OLE BELIVERY GRANACTERISTICS
: 250	Aneroid pressure
: 5.50	hPa : 1000
: ← 0.10	Rated speed rpm : 600
	Del. quantity
: 2.00	+ cm3/1000 strokes : 138.0
	Tolerance
	- + cm3/1000 strokes : +- 2.0
	† Check tolerance
	+ cm3/1000s. : + 5.0
: 0.40	+ Spreed
: 800	† Tolerance
: 12.85	+ cm3/1000 strokes : 6.0
: ← 0.05	† Check tolerance
	+ cm3/1000s. : 9.0
	+
	+
: ← 0.10	+ Aneroid pressure
	hPa : 1000
: 1000	Rated speed rpm : 1000
: 12.60	+ Del. quantity
: + 0.10	+ cm3/1000 strokes : 139.0
. 3,1,5	+ Tolerance
: 1200	+ cm3/1000 strokes : +- 2.0
12.50	Check tolerance
· + 0 10	cm3/1000s. : + 5.0
	Aneroid pressure hf'a : 1300 Rated speed rpm : 1200 Del. quantity cm3/1000 strokes : 137.0 Tolerance
• 500	cm3/1000 strokes : + 2.0
	Check tolerance
	+ cm3/1000s. : + 5.0
	1
. 3.,5	
: 500	Aneroid pressure
<u>-</u>	hPa : -
: 10.35	+ Rated speed rpm : 500
	+ Del. quantity
* * * =	+ cm3/1000 strokes : 75.0
	Tolerance
	+ cm3/1000 strokes : + 1.0
: 500	+ cm3/1000 strokes : + 1.0 + Check tolerance
: 500	† Check tolerance
: 550	† Check tolerance
: 550 : 12.35	† Check tolerance
: 550	Check tolerance cm3/1000s. : +- 3.0
: 550 : 12.35 : ← 0.15	† Check tolerance
: 550 : 12.35 : ← 0.15 : 155	Check tolerance cm3/1000s. : + 3.0 STARTING FUEL DELIVERY
: 550 : 12.35 : ← 0.15	Check tolerance cm3/1000s. : +- 3.0
	: 250 : 5.50 : + 0.10 : 2.00 : 0.40 : 800 : 12.85 : + 0.05 : 600 : 12.80 : + 0.10 : 12.60 : + 0.10 : 12.50 : + 0.10 : 12.50 : + 0.10 : 500 : 12.80 : + 0.10

Tolerance

cm3/1000 strokes : \leftarrow 10.0

Check tolerance

cm3/1000s. : +- 13.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.50
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 18.0
Tolerance
cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.12.92 Test oil : ISO 4113

Combination No. : 0 403 466 131

Injection pump

Pump designation : PES6MW100/120RS1184

EP type number : 0 413 406 171

Governor

Governer design. : RSV375...1250MW2A334

: -1

Governer no. : 0 420 085 207

Cust. part No. : 3281954

Customer—spec. information
Customer : CUMMINS
Motor : 6 BTA 5.9

Power KW : 140.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance *NW : + 0.75

BASIC SETTING

Del. quantity

cm3/1000 strokes : 111.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes :

Check tolerance

cm3/1000s. : 6.0

3.5

1	
Į	control lever
Rated speed rpm : 375	position degree : 114.0 tolerance degree : +- 4.0
Rack travel in mm: 6.55	toterance degree 4.0
Tolerance mm : + 0.25	RATED SPEED
Del. quantity	rack travel mm : 9.30
cm3/1000 strokes : 18.0 +	Rated speed rpm : 1300 Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0	roterance manning.
Check tolerance	rack travel mm : 4.00
$cm3/1000s.$: \leftarrow 4.5	Rated speed rpm : 1380
Spreed + Tolerance +	Tolerance 1/min : +- 15
cm3/1000 strokes : 3.5	rack travel mm : 1.00
Check tolerance	Tolerance mm : +- 0.70
cm3/1000s. : 5.5	Rated speed rpm : 1550
†	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1435
WITH GOVERNOR	Tolerance 1/min : + 15
+	
GUIDE SLEEVE POSITION	
+	LOW IDLE
+	
control lever + position degree : - 3	control lever
Rated speed rpm : 800	position degree : 84.0
+	tolerance degree : +- 4.0
Rack travel in mm: 0.65	
Tolerance mm : \leftarrow 0.35	Setting point w/out bumper spring
governor spring	Rated speed rpm : 375
pre-tension +	rack travel mm : 7.05
click setting x : 3.00 +	Tolerance mm : +- 0.25
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated Speed rpill . 100
+	CRT mm min. : > 19.00
Rated speed rpm : 1250	T
Aneroid pressure + hPa : 800 +	Testing:
Del. quantity	Rated speed rpm : 375
cm3/1000 strokes : 111.0 +	rack travel mm : 6.55
Tolerance	Tolerance mm : +- 0.25
cm3/1000 strokes : + 1.0 + Check tolerance	
cm3/1000s. : + 3.0	
Spreed	ANEROID/ALTITUDE
Tolerance	COMPENSATOR TEST
cm3/1000 strokes : 3.5 + Check tolerance	
cm3/1000s. : 6.0	SETTING
+	
†	Rated speed rpm : 500
CONTROL LEVED	Pressure hPa : 800 rack travel mm : 10.35
CONTROL LEVER +	rack travet mm : 10.32
+	Tolerance mm : + 0.05

500 Rated speed rpm : Pressure hPa : rack travel mm 9.85 : **←** 0.05 Tolerance mm

MEASUREMENT

Rated speed rpm 500

470 Pressure hPa : rack travel mm 10.05 Tolerance mm : \leftarrow 0.05

FUEL DELIVERY CHARACTERISTICS

Ameroid pressure

hPa 500 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 90.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 : **←** 1.00 Tolerance mm

Del. quantity

cm3/1000 strokes : 85.0

Tolarance

cm3/1000 strokes : + 5.0

Check tolerance

: + 8.0 cm3/1000s.

LOW IDLE

Rated speed rpm : 375

Rack travel in mm: 6.55 Tolerance mm : + 0.25 Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

: **←** 4.5 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

End of test specification sheet

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Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 06,11,97 : ISO 4113

Combination No. : 0 403 466 169AA

Injection pump

Pump designation: PES6MW100/120RS1242

EP type number : 0 413 406 241

Governor

Governer design. : RSV500...1100MW5A385

Governer no. : 0 420 085 270

Cust. part No. : 3284253

Customer-spec. information Customer : CDC

Motor

: 6 CTA

Power KW : 179.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

2.0

Tolerance bar

: **←** 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm

3.20 : + 0.05

Tolerance mm Check

tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance 'NW

: +- 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50

Tolerance

: + - 0.50

Check

tolerance *NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

15.00

Difference ° CS : 1.50

BASIC SETTING

Rated speed rpm : 1100 +	governor spring pre-tension click setting x : 3.50
Rack travel in mm : 12.80 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 159.0	Rated speed rpm : 1100 Aneroid pressure hPa : 1200
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 159.0 Tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Spreed	Spreed Tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	
	CONTROL LEVER
Rated speed rpm : 500	control lever position degree : 109.0
Rack travel in mm: 5.10 Tolerance mm: + 0.10 Del. quantity	tolerance degree : +- 4.0 RATED SPEED
cm3/1000 strokes : 21.0 + Tolerance +	rack travel mm : 11.80 Rated speed rpm : 1170
cm3/1000 strokes : +- 2.0 + Check tolerance cm3/1000s. : +- 4.5	Tolerance 1/min : + 5 rack travel mm : 7.00
Spreed + Tolerance +	Rated speed rpm : 1230 Tolerance 1/min : +- 5
cm3/1000 strokes : 3.5	rack travel mm : 1.00 Tolerance mm : + 0.70
‡	Rated speed rpm : 1350
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 7.00 Rated speed rpm : 1230 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	
†	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever
Rack travel in mm: 0.50 Tolerance mm: + 0.20	position degree : 85.0 tolerance degree : +- 4.0
<u> </u>	Setting point w/out bumper spring
1	Rated speed rpm : 500

rack travel mm Tolerance mm	: 4.60 : + 0.10	+ Del. quantity + cm3/1000 strokes : 169.0
Rated speed rpm	: 100	Tolerance cm3/1000 strokes : + 2.0
CRT man min.	: > 19.00	Check tolerance + cm3/1000S. : +- 5.0 + Spreed
Testing:		Tolerance : 6.0
Rated speed rpm rack travel mm Tolerance mms	: 500 : 5.10 : + 0.10	Check tolerance : 9.0
TORQUE CONTROL Rateo speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 12.80 : + 0.05 : 750 : 13.40 : + 0.20	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 126.5 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0
Rated speed rpm rack travel mm Tolerance mm	: 13.30 : + 0.20	STARTING FUEL DELIVERY
ANEROID'ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa	: 500 : 1200	Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 1.00 Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : +- 10.0 Check tolerance cm3/1000s. : +- 13.0
ressure nra rack travel mm Tolerance mm	: 13.40	- cm3/10005. : 13.0
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: – : 11.10	LOW IDLE Rated speed rpm : 500
MEASUREMENT		Rack travel in mm : 5.10 Tolerance mm : + 0.10
Rated speed rpm	: 500	Del. quantity cm3/1000 strokes : 21.0
Pressure hPa rack travel mm Tolerance mm	: 13.10	Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000S. : + 4.5 Spreed
FUEL DELIVERY CHA	ARACTERISTICS	Tolerance cm3/1000 strokes : 3.5 Check tolerance
Aneroid pressure hPa Rated speed rpm	: 1200 : 1000	cm3/1000s. : 5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 07.01.92 : ISO 4113

Combination No. : 0 403 476 099

Injection pump

Pump designation : PES6MW100/320RS1209

EP type number : 0 413 406 200

Governor

Governer design. : RSV300...750MW1A802

Governer no. : 0 420 085 113

Cust. part No. : 3-7111

Customer-spec. information

Customer

: MAN

Motor

: D0826LE20

Power KW

: 116.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +-2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 681 991 191

Opening pressure

: 208.5

Tolerance bar

: + 1.5

Test lines

: 1 680 750 008

Outside diameter :

6.0

x inside diameter : 2.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm

: +- 0.65 Toterance ma

Check

: + 0.10tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

: **←** 0.75 tolerance °NW

Start of delivery mark

1 Barrel no. :

BASIC SETTING

Del. quantity

cm3/1000 strokes : 144.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

: 6.0	control lever position degree tolerance degree	
: 300	RATED SPEED rack travel mm	: 13.50 : 750
	+	
	Rated speed rpm	
: 36.0	† Tolerance 1/min	: +- 4
: +- 2.0	rack travel mm	: 1.00 : + 0.70
: ← 4.5	Rated speed rpm	
4.0	ASSEMBLY GOVERNO	R SETTING
: 6.0	Rated speed rpm	: 750
: 9.0	rack travel mm	
LECTION DUMP	Rated speed rpm	
ECITON PUMP	rack travel mm	
	rack travel mm	: 1.00
LION	Tolerance mm Rated speed rpm	: + 0.70 : 950
	Rated speed rpm rack travel mm	
: 800	† Rated speed rpm	: 802
: 0.65 : + 0.35	Tolerance 1/min rack travel mm	
r AT FULL LOAD STOP	rack travel mm Tolerance mm	; + 0.70
: 700	Pated speed rom	: 752
<u>-</u>	rack travel mm	: 13.50
: 144.0	Rated speed rpm	
: + 1.0	rack travel mm	: + 4.00
: +- 3.0	rack travel mm Tolerance mm	: 1.00 : ← 0.70
: 3.5	‡	
: 6.0	Rated speed rpm rack travel mm	
	Rated speed rpm	: 804
	, waster opered (pin	
	: + 0.40 : 36.0 : + 2.0 : + 4.5 : 6.0 : 9.0 BECTION PUMP FION - 3 : 800 : - 0.65 : + 0.35 FAT FULL LOAD STOP : 700 : : 144.0 : + 1.0 : + 3.0 : 3.5	## 0.40 rack travel mm Rated speed rpm Tolerance 1/min

rack travel ma	: 1.00
Tolerance ma	: + 0.70
Rated speed rpm	: 754
rack travel mm	: 13.50
Rated speed rpm	: 805
Tolerance 1/min	: 4
rack travel mm	: 4.00
rack travel mm	: 1.00
Tolerance mm	: + 0.70
Rated speed rpm	: 755
rack travel mm	: 13.50
Rated speed rpm	: 806
Tolerance 1/min	: + 4
rack travel mm	: 4.00
rack travel ma	: 1.00
Tolerance man	: + 0.70

TOM IDEE

control lever position degree : 68.0 tolerance degree : + 4.0

Testing:

Rated speed rpm : 300 rack travel mm : 7.00 Tolerance mm : + 0.40 rack travel mm : 2.00 Rated speed rpm : 340 Tolerance 1/min : + 30

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 140.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 13.0

LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mma Tolerance mmm Del. quantity	: +-	7.00 0.40	
cm3/1000 strokes Tolerance	:	36.0	
cm3/1000 strokes Check tolerance	: +-	2.0	
cm3/1000s. Spreed Tolerance	: +-	4.5	
cm3/1000 strokes Check tolerance	:	6.0	
cm3/1000s.	:	9.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 07.05.90 Test oil : ISO 4113

Combination No. : 0 403 486 102

Injection pump

Pump designation : PES6MW100/321RS1192

EP type number : 0 413 406 182

Governor

Governer design. : RSV300...1300MW0A902

: -1

Governer no. : 0 420 085 132

Cust. part No. : 3-7016

Customer-spec. information

Customer : MAN

Motor : D0826LE40

Power KW : 199.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.55 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance *NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance 6.0 CONTROL LEVER cm3/1000s. control lever position degree : 120.0 tolerance degree : +- 4.0 300 Rated speed rpm 4.80 RATED SPEED Rack travel in mm: rack travel mm : 12.00 : + 0.10 Tolerance mm Rated speed rpm : 1355 Del. quantity 15.0 Tolerance 1/min : +- 5 cm3/1000 strokes : Tolerance 2.0 rack travel mm 4.00 cm3/1000 strokes : +-: Rated speed rpm : Check tolerance 1475 cm3/1000s.Tolerance 1/min : +- 15 : +--4.5 Spreed 1.00 Tolerance rack travel mm 3.5 ; ← 0.70 cm3/1000 strokes : Tolerance mm Check tolerance Rated speed rpm : 1650 cm3/1000s. 5.5 (B) SETTING OF INJECTION PUMP WITH GOVERNOR LOW IDLE control lever position degree : GUIDE SLEEVE POSITION 85.0 tolerance degree : +- 4.0 control lever Setting point w/out bumper spring position degree Rated speed rpm : Rated speed rpm : 100 800 CRT mm min. : > 19.00 Rack travel in mm: 0.65 Tolerance mm : + 0.35 Testing: governor spring 300 pre-tension Rated speed rpm 4.80 5.50 rack travel mm click setting x : : + 0.10Tolerance mm FULL LOAD DELIVERY AT FULL LOAD STOP rack travel mm : 2.00 Rated speed rpm : 1300 Aneroid pressure hPa Del. quantity FUEL DELIVERY CHARACTERISTICS cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : \leftarrow 1.0 Aneroid pressure Check tolerance cm3/1000s. : +-3.0 hPa 800 Spreed Rated speed rpm : Del. quantity Tolerance 3.5 cm3/1000 strokes : 154.0 cm3/1000 strokes : Check tolerance Tolerance : cm3/1000 strokes : + 1.5cm3/1000s. 6.0

Check tolerance cm3/1000s. Spreed	: +-	- 4.0	
Tolerance cm3/1000 strokes	:	5.0	
Check tolerance cm3/1000s.	:	7.0	
Aneroid pressure	······································		-
hPa	:	_	
Rated speed rpm	:	500	
Del. quantity cm3/1000 strokes Tolerance	:	147.0	
cm3/1000 strokes Check tolerance	: +	- 1.5	
cm3/1000s.	: +	- 4.0	
STARTING FUEL DEL	IVER	Υ	
Rated speed rpm	:	100	
rack travel mm	:	20.00	
Tolerance mm Del. quantity	. *	- 1.00	
cm3/1000 strokes	:	135.0	
Tolerance		F 0	
cm3/1000 strokes Check tolerance	: +-	- 5.0	
cm3/1000s.	: +-	- 8.0	
LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mm	:	4.80	
Tolerance mm	: +-	- 0.10	
		15.0	
Del. quantity cm3/1000 strokes	:		
cm3/1000 strokes Tolerance	:	. -	
cm3/1000 strokes Tolerance cm3/1000 strokes	: +-	- 2.0	
cm3/1000 strokes Tolerance	: :+-	- 2.0 - 4.5	
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: :+-		
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: +-	- 4.5	
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: +-		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 12.11.97 Edition Test oil : ISO 4113

Combination No. : 0 403 548 040

Injection pump

Pump designation : PE8MW100/720LS1117

EP type number : 0 413 508 101

Governor

Governer design. : RQV300...1075MW135

: 0 420 083 295 Governer no.

Cust. part No.

Customer-spec. information

Customer : KHD

: F 8L 513 Motor Power KW : 161.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 1 417 413 047

1.5 Inlet press. bar :

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

173.5 : **←** 1.5 Tolerance bar

Test lines : 1 680 740 014

Outside diameter : 6.0 x inside diameter : 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : +- 1.0

Prestroke mm 3.15 Tolerance mm : + - 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

: 1-8-7-2-6 Firing order

: - 5- 4- 3

: 0-45-90-135-180 Phasing

: -225-270-315

: +- 0.50Tolerance

Check

tolerance *NW : + 0.75

BASIC SETTING

Del. quantity

Rated speed rpm : 1075

Rack travel in mm: 10.85 Tolerance mm : +- 0.05

cm3/1000 strokes :

91.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +-3.0

Spreed

Check tolerance		•
cm3/1000s.	: 6.0	-
		-
Rack travel in mm Tolerance mm	n: 8.70 : + 0.10	-
(B) SETTING OF IN WITH GOVERNOR	NJECTION PUMP	- - -
GUIDE SLEEVE TRAV	/EL	-
Rated speed rpm guide sleeve		-
travel mm Tolerance mm	: 8.94 : +- 0.25	-
Rated speed rpm	: 300	7
guide sleeve	4 27	1
travel mm	: 1.27	-
Tolerance mm	: ← 0.25	-
Rated speed rpm	: 730	7
guide sleeve		4
travel mm	: 5.08	1
Tolerance mm	: ← 0.25	1
Rated speed rpm	: 325	-
guide sleeve		4
travel mm	: 1.74	4
Tolerance mm	: +- 0.25	4
Dakad assad sss	: 375	1
Rated speed rpm guide sleeve	. 313]
travel mm	: 2.53]
Tolerance mm	: + 0.25	4
		4
Rated speed rpm	: 420	
guide sleeve		+
travel mm	: 2.94	+
Tolerance mm	: ← 0.25	
Rated speed rpm	: 1330	7
guide sleeve		+
travel mm	: 11.50	+
Tolerance mm	: +- 0.50	+

Rack travel in mm: 9.80 Tolerance mm : \leftarrow 1.30 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1075 Aneroid pressure hPa Del. quantity cm3/1000 strokes : 91.0 Tolerance cm3/1000 strokes : \leftarrow 1.0 Check tolerance cm3/1000s. : ← 3.0 Spreed Tolerance 3.5 cm3/1000 strokes : Check tolerance cm3/1000s. 6.0 CONTROL LEVER control lever position degree : 120.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 9.80 Rated speed rpm : 1100 Tolerance 1/min : + 5 rack travel mm : 4.50 Rated speed rpm : 1175 Tolerance 1/min : + 15 Rated speed rpm : 1300 rack travel mm : 4.00 LOW IDLE control lever position degree : 88.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 100

Rated speed rpm : 1180

control lever

position degree : - 1

CRT am min. : > 10.20

Testing:

300 Rated speed rpm : 8.70 rack travel mm : + 0.10Tolerance mm

TORQUE CONTROL

1075 Rated speed rpm rack travel mm 10.85 : **←** 0.05 Tolerance mm

650 Rated speed rom rack travel mm 11.50 Tolerance mm : + 0.10

900 Rated speed rom 11,40 rack travel mm Tolerance mm : + - 0.10

Rated speed rpm 1000 rack travel mm 11.00 Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100 220 Rated speed rpm : <

Check

speed 1/min : > 80 Check speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm 650 Del. quantity cm3/1000 strokes : 91.0 Tolerance cm3/1000 strokes : +-1.5 Check tolerance cm3/1000s.: +-4.0

Spreed Tolerance

cm3/1000 strokes : 5.0 Check tolerance 7.0

cm3/1000S.

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated, rack must reach start position in max. control lever setting.

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s.: +- 13.0

LOW IDLE

Rack travel in mm : 8.70 : + 0.10 Tolerance mm

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 12.11.97 Test oil : ISO 4113

Combination No. : 0 403 548 041

Injection pump

Pump designation : PE8MW100/720LS1128

EP type number : 0 413 508 103

Governor

Governer design. : RQV450...1150MW142

Governer no. : 0 420 083 306

Cust. part No. :

Customer-spec. information

Customer : KHD

: BF 8L 513 Motor Power KW : 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

40 temp. °C

Tolerance °C 2.0

: 1 417 413 047 Overflow valve

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar : **←** 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 3.15 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-8-7-2-6

: - 5- 4- 3

: 0-45-90-135-180 Phasing

: -225-270-315

Tolerance : **←** 0.50

Check

tolerance *NW : **←** 0.75

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm: 12.05 : +- 0.05 Tolerance mm

Dei. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : + 4.0

Spreed

Tolerance	1	
cm3/1000 strokes	: 4.0	Rated speed rpm : 1227
	+	guide sleeve
Check tolerance cm3/1000s.	: 7.5	travel mm : 10.00 Tolerance mm : +- 0.25
CIRDA TOUUS.	· '.3	roterance limit . F- 0.23
	+	Rated speed rpm : 1320
	+	guide sleeve
Rated speed rpm	: 450	travel mm : 11.50
Rack travel in mon	570 I	Tolerance mm : +- 0.50
Tolerance mm		
Del. quantity	}	GUIDE SLEEVE POSITION
cm3/1000 strokes	: 15.0	
Tolerance	†	asakasi lawas
cm3/1000 strokes Check tolerance	: + 2.0	control lever position degree : - 1
cm3/1000s.	: + 4.5	Rated speed rpm : 1150
Spreed	+	
Tolerance	†	Rack travel in mm: 16.50
cm3/1000 strokes	: 3.5	Tolerance mm : +- 1.30
Check tolerance cm3/1000s.	: 5.5	
(IIIC) 100001	. ,,,	FULL LOAD DELIVERY AT FULL LOAD STOP
	··· †	
(B) SETTING OF IN	DECTION PUMP	Rated speed rpm : 1125 Aneroid pressure
WITH GOVERNOR	I	hPa : -
		Del. quantity
GUIDE SLEEVE TRAV	'EL 🕂	cm3/1000 strokes : 135.0
9 -4-4	. 117/	Tolerance cm3/1000 strokes : +- 1.0
Rated speed rpm guide sleeve	: ''' ⁰ I	Check tolerance
travel mm	: 8.76	cm3/1000s. : +- 4.0
Tolerance mm	: ← 0.25 +	Spreed
~	t	Tolerance
Rated speed rpm guide sleeve	: 450	cm3/1000 strokes : 4.0 Check tolerance
travel mm	: 2.08	cm3/1000s. : 7.5
Tolerance mm	: + 0.25 +	
~	1000	
Rated speed rpm guide sleeve	: 1000	CONTROL LEVER
travel mm	: 6.73	CONTROL ELVER
Tolerance mm	: + 0.25	control lever
~	+	position degree : 121.0
Rated speed rpm guide sleeve	: 565	tolerance degree : +- 4.0
travel mm	: 3.78	RATED SPEED
Tolerance mm	: +- 0.25 +	rack travel mm : 11.10
	+	Rated speed rpm : 1160
Rated speed rpm	: 615	Tolerance 1/min : +- 5
guide sleeve travel mm	: 4.34	rack travel mm : 4.00
Tolerance mm	: + 0.25	Rated speed rpm : 1210
	+	Tolerance 1/min : + 15
Rated speed rpm	: 710	rack travel mm : 0.50
guide sleeve travel mm	: 4.80	Tolerance mm : + 0.50
Tolerance mm	: + 0.25	Rated speed rpm : 1300
	•	·

LOW IDLE

control lever

position degree : 88.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350

CRT mm min. :> 8.00

Testing:

Rated speed rpm : 450 rack travel mm : 5.70 Tolerance mm : +- 0.10

TORQUE CONTROL

Rated speed rpm : 1125
rack travel mm : 12.05
Tolerance mm : +- 0.05

Rated speed rpm : 700 rack travel mm : 12.05 Tolerance mm : +- 0.10

Start interlock

Rated speed rpm : > 200 Rated speed rpm : < 350

Check

speed 1/min : > 180

Check

speed 1/min : < 370

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 7.0

Check tolerance

cm3/1000s. : + 10.0

LOW IDLE

cm3/1000s.

Rated speed rpm 450 5.70 Rack travel in mm: Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 15.0 Tolerance cm3/1000 strokes : +2.0 Check tolerance cm3/1000s.4.5 Spreed Tolerance cm3/1000 strokes : 3.5 Check tolerance

5.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 17.11.97

Test oil

: ISO 4113

Combination No. : 9 400 085 261

Injection pump

Pump designation : PES6A80D320RS1271 EP type number : 9 400 083 058

Governor

Governer design. : RSV350...1250A0C2029

: -3R

Governer no.

: 9 420 083 271

Cust. part No. :

Customer-spec. information

Customer

: MWM

Motor

: D 229-6

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

: 173.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter: 2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : +- 1.0

Prestroke mm

2.25

: +- 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel

10.50

Tolerance mm : +- 1.50

Difference ° CS : 4.50

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 8.25 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 50.0

B10

Tolerance +	Tolerance
cm3/1000 strokes : +- 0.5	cm3/1000 strokes : + 0.5
CHID/ TODO SCIORES O.3	Check tolerance
Check tolerance	cm3/1000s. : +- 2.0
cm3/1000s. : +- 2.0 +	Spreed
	Tolerance
Spreed +	cm3/1000 strokes : 2.5
<u> </u>	Check tolerance
Tolerance	cm3/1000s. : 4.0
cm3/1000 strokes : 2.5	
1	
Check tolerance	
· · · · · · · · · · · · · · · · · · ·	CONTROL LEVED
cm3/1000s. : 4.0 +	CONTROL LEVER
<u>†</u>	control lever
+	position degree : 106.0
Rated speed rpm : 350 +	tolerance degree : +- 4.0
+	
Rack travel in mm: 6.00	RATED SPEED
Tolerance mm : $+$ 0.10 $+$	rack travel mm : 7.20
Del. quantity	Rated speed rpm : 1295
cm3/1000 strokes : 8.0	Tolerance 1/min : +- 5
	rocerance mann.
Tolerance +	rack travel mm : 4.00
cm3/1000 strokes : +- 1.5	
Check tolerance +	Rated speed rpm : 1335
cm3/1000s. : + 3.5	Tolerance 1/min : + 15
Spreed +	
Tolerance +	rack travel mm : 0.85
cm3/1000 strokes : 4.0 +	Tolerance mm : + 0.55
Check tolerance +	Rated speed rpm : 1450
cm3/1000s. : 6.0	
1	
1	
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	LOW IDLE
WITH GOVERNOR T	LOM TOPE
	
ì	
†	and the second
+	control lever
GUIDE SLEEVE POSITION	position degree : 79.0
GUIDE SLEEVE POSITION	
+	position degree : 79.0 tolerance degree : + 4.0
control lever	position degree : 79.0
control lever	position degree : 79.0 tolerance degree : + 4.0
control lever position degree : - 3	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring
control lever	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350
control lever position degree : -3 Rated speed rpm : 800	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350
control lever position degree : -3 Rated speed rpm : 800	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing:
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350 rack travel mm : 6.00
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25 FULL LOAD DELIVERY AT FULL LOAD STOP	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350 rack travel mm : 6.00
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250 Aneroid pressure	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350 rack travel mm : 6.00 Tolerance mm : + 0.10
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250 Aneroid pressure hPa : -	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350 rack travel mm : 6.00 Tolerance mm : + 0.10 rack travel mm : 2.00
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.65 Tolerance mm : + 0.35 governor spring pre-tension click setting x : 4.25 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250 Aneroid pressure	position degree : 79.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 350 rack travel mm : 5.50 Tolerance mm : + 0.10 Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 350 rack travel mm : 6.00 Tolerance mm : + 0.10

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1250 : 8.25 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 500 : 9.85 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 800 : 9.25 : + 0.15
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure	: -
Rated speed rpm Del. quantity	· · 500
cm3/1000 strokes Tolerance	: 51.5
cm3/1000 strokes Check tolerance	: + 1.5
cm3/1000s.	: +- 3.0
Aneroid pressure	
hPa Rated speed rpm	: - : 800
Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes	: ← 1.5
Check tolerance	: +- 3.0
J., 10000.	
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
rack travel mm Tolerance mm	: 20.00 : + 1.00
LOW IDLE	
Rated speed rpm	: 350

Del. quantity
cm3/1000 strokes : 8.0
Tolerance
cm3/1000 strokes : +- 1.5
Check tolerance
cm3/1000s. : +- 3.5
Spreed
Tolerance
cm3/1000 strokes : 4.0
Check tolerance
cm3/1000s. : 6.0

End of test specification sheet

Rack travel in mm : 6.00 Tolerance mm : + 0.10

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 0 402 736 867AA

Injection pump

Pump designation : PES6P12OA12ORS7350 EP type number : 0 412 726 921

Governor

Governer design. :
Governer no. :

Cust. part No. : 3933298

Customer—spec. information Customer : CDC Motor : 6BTA-A Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60Tolerance mm : $\leftarrow 0.05$

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 12.50 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

*NW after s.o.d. : 5.75 Tolerance : + 0.50

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.00 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 167.5

	1
Tolerance cm3/1000 strokes : +- 1.0	control lever position degree : 118.0 tolerance degree : ← 6.0
Check tolerance cm3/1000s. : +- 4.0	+ RATED SPEED + rack travel mm : 13.00
Spreed	Rated speed rpm : 1300 Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 8.0	Check speed 1/min : +- 20
Check tolerance cm3/1000s. : 12.0	rack travel mm : 4.00 Rated speed rpm : 1465 Tolerance 1/min : +- 5
Rated speed rpm : 420	+ Check + speed 1/min : +- 10
Nated Speed (pil) . 420	rack travel mm : 0.50
Rack travel in mm : 6.10 Tolerance mm : + 0.20	Tolerance mm : +- 0.50 Rated speed rpm : 1550
Del. quantity cm3/1000 strokes : 13.0	
Tolerance	+
cm3/1000 strokes : +- 3.0	+ LOW IDLE
Check tolerance cm3/1000s. : +- 5.0	+ LOW IDEE
Spreed	+
Tolerance cm3/1000 strokes : 4.0	+ control lever + position degree : 72.0
Check tolerance	tolerance degree : + 6.0
cm3/1000s. : 8.0	+
	Control lever difference Grad: 46.0
(B) SETTING OF INJECTION PUMP	tolerance degree : + 6.0
WITH GOVERNOR	Sotting point worth human caping
	+ Setting point w/out bumper spring +
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Rated speed rpm : 300
Rated speed rpm : 1150	CRT mm min. :> 8.90
Aneroid pressure	Testing:
hPa : 800 Del. quantity	† Rated speed rpm : 420
cm3/1000 strokes : 167.5	rack travel mm : 6.10
Tolerance	+ Tolerance mm : + 0.20
cm3/1000 strokes : + 1.0 Check tolerance	Rated speed rpm : 420
cm3/1000s. : $+$ 4.0	
Spreed Tolerance	TORQUE CONTROL
cm3/1000 strokes : 8.0	Rated speed rpm : 1150
Check tolerance	rack travel mm : 14.00
cm3/1000s. : 12.0	+ Tolerance mm : +- 0.05
	Rated speed rpm : 800
CONTROL LEVED	rack travel mm : 12.60 Tolerance mm : + 0.20
CONTROL LEVER	T total artice fixer . '- 0.20

Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 1150 : 800
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1150 : - : 9.75 : + 0.20
MEASUREMENT	
Rated speed rpm	: 1150
Pressure hPa rack travel mm Tolerance mm	: 470 : 12.85 : ← 0.30
Pressure hPa rack travel mm Tolerance mm	: 250 : 10.85 : + 0.20
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 325
Check speed 1/min Check	: > 80
speed 1/min	: < 335
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 800 : 800
Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes	: 3.0
Check tolerance cm3/1000s. Spreed	: + 6.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0

Aneroid pressure hPa Rated speed rpm Del. quantimy cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 1150 : 80.5 : +- 2.0 : +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance	: 100 : 13.75 : + 0.50 : 155.0
cm3/1000 strokes	: ← 20.0
Check tolerance cm3/1000s.	: +- 25.0
LOW IDLE	
Rated speed rpm	: 420
Rack travel in mm Tolerance mm Del. quantity	: 6.10 : ← 0.20
cm3/1000 strokes	: 13.0
Tolerance cm3/1000 strokes	: + 3.0
Check tolerance cm3/1000s. Spreed	: ← 5.0
Tolerance cm3/1000 strokes	: 4.0
Check tolerance	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 18.07.96

Test oil

: ISO 4113

Combination No. : 0 402 736 906

Injection pump

Pump designation : PES6P12DA12DRS7416

EP type number : 0 412 726 959

Governor

Governer design. : RQV400...1250PA1060

: -4K

Governer no.

: 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information

Customer : CDC

Motor

: 6BTA-A

Power KW

: 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve

: 2 417 413 093

Inlet press. bar :

2.0

Tolerance bar : \leftarrow 0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter :

3.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : +- 0.05Tolerance mm

3.60

Check

tolerance mm

: +- 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

Firing order

: 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300

Start of delivery blocking

*NW after s.o.d. : 6.25

Tolerance

: +- 0.50

Check

tolerance °NW

: ← 0.75

Barrel no.

: 1

BASIC SETTING

Rated speed rpm :

1250

Rack travel in mm : 13.65

Tolerance mm : \leftarrow 0.05

Del. quantity cm3/1000 strokes : 160.5	Tolerance mm : +- 0.25 Rated speed rpm : 1690
Tolerance cm3/1000 strokes : + 1.0	guide sleeve travel mm : 11.50 Tolerance mm : +- 0.50
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	T GOIDE SCEEVE POSTITION
Tolerance cm3/1000 strokes : 8.0	control lever position degree : VH Rated speed rpm : 1390
Check tolerance : 12.0 :	Rack travel in mm : 12.60
Rated speed rpm : 420	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 1250
Rack travel in mm : 6.00 Tolerance mm : + 0.10	Aneroid pressure hPa : 1200
Del. quantity - cm3/1000 strokes : 15.0 -	+ Del. quantity + cm3/1000 strokes : 160.5
Tolerance cm3/1000 strokes : + 3.0	Tolerance the cm3/1000 strokes to the cm3/1000 strokes
Check tolerance cm3/1000s. : +- 5.0	Check tolerance cm3/1000s. : +- 4.0
Spreed -	Spreed Tolerance
cm3/1000 strokes : 4.0	cm3/1000 strokes : 8.0
Check tolerance cm3/1000s. : 8.0 -	Check tolerance : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 117.0
Rated speed rpm : 1329 -	tolerance degree : +- 4.0
guide sleeve	RATED SPEED : 12.60
travel mm : 7.83 - Tolerance mm : + 0.15 -	rack travel mm : 12.60 Rated speed rpm : 1325
Rated speed rpm : 400	Tolerance 1/min : +- 15
guide sleeve	rack travel mm : 4.00
travel mm : 1.44 -	Rated speed rpm : 1475 Tolerance 1/min : +- 5
Tolerance mm : \leftarrow 0.20	Tolerance 1/min : +- 5
Rated speed rpm : 939	rack travel mm : 0.50
guide sleeve = 5.18 = 5.18	Tolerance mm : +- 0.50 Rated speed rpm : 1550
Tolerance mm : \leftarrow 0.25	Ageed Speed (pill : 1990
Rated speed rpm : 640 - guide sleeve	
travel mm : 3.56	LOW IDLE

control lever position degree tolerance degree	: 71.0 : + 4.0		: 260 : 11.60 : + 0.20
Control lever dia		Start interloc	:k
Grad tolerance degree		Rated speed rp	om :> 100 om :< 280
Setting point w/o		Check	
Rated speed rpm	: 300	+ speed 1/min + Check	: > 80
CRT mm min.	: > 5.80	speed 1/min	: < 290
Testing:		EUEL DEL TUERY	CHARACTERISTICS
Rated speed rpm	: 420	T LOEL DELIVER!	CHARACTERISTICS
rack travel mm Tolerance mm	: 6.00 : +- 0.10	Aneroid pressu	ıre
		hPa Rated speed rp	
Rated speed rpm	: 425	+ Rated speed rp + Del. quantity	wm : 80U
TODOUT CONTROL		+ cm3/1000 strok	es : 131.5
TORQUE CONTROL Rated speed rpm	: 1250	+ Tolerance + cm3/1000 strok	es : +- 3.0
rack travel mm	: 13.65	+ Check tolerand	е
Tolerance mm	: ← 0.05	+ cm3/1000s. + Spreed	: + 6.0
Rated speed rpm rack travel mm	: 800	+ Tolerance	.es : 8.0
rack travel mm Tolerance mm		+ Cms//uuu strok	
		cm3/1000s.	
Rated speed rpm	: 500 : 11.60	<u> </u>	······································
Rated speed rpm rack travel mm Tolerance mm	: + 0.20	+ Aneroid pressu	ire
		+ hPa + Rated speed rp	. – m · 1250
ANEROID/ALTITUDE		Del. quantity	
COMPENSATOR TEST		+ cm3/1000 strok	es : 107.5
		+ Tolerance + cm3/1000 strok	es : +- 1.0
SETTING		+ Check tolerand	е
Dakad sasal sus	. 1250	cm3/1000s.	: +- 4.0
Rated speed rpm Pressure hPa	: 1250 : 1200	Ŧ	
Rated speed rpm	: 1250	STARTING FUEL	DELIVERY
Pressure hPa rack travel mm	: - 10.40	+ Set starting	CRT at K-cam
Tolerance mm	: +- 0.20	T occ scar cing	citi at it cam.
MEASUREMENT		Rated speed rp	
Rated speed rpm	: 1250	† rack travel mm † Tolerance mm	: + 0.50
Pressure hPa	: 375	+ Del. quantity + cm3/1000 strok	
rack travel mm	: 12.70	† Tolerance	
Tolerance mm	: + 0.30	+ cm3/1000 strok	es : + 20.0

100 280 80 290 ERISTICS 1200 800 131.5 - 3.0 - 6.0 8.0 12.0 1250 107.5 - 1.0 - 4.0 <-cam. 100 14.10 - 0.50 155.0 **--** 20.0

Check to	olerance			
cm3/100	Os.	•	+	25.0

LOW IDLE

Rated speed rpm	:		420
Rack travel in mm	•		6.00
Tolerance mm	:	+-	0.10
Del. quantity			
cm3/1000 strokes	:		15.0
Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance	•		
cm3/1000s.		+-	5.0
	•	•	٠.٥
Spreed			
Tolerance			
cm3/1000 strokes	:		4.0
Check tolerance			
cm3/1000s.	:		8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.09.97 Test oil : ISO 4113

Combination No. : 0 402 736 906AA

Injection pump

Pump designation : PES6P12OA12ORS7416 EP type number : 0 412 726 959

Governor

Governer design. : Governer no. :

Cust. part No. : 3933297

Customer—spec. information
Customer : CDC
Motor : 68TA-A
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. $^{\circ}$ C : $^{\circ}$ C :

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05
Check

uneck

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

*NW after s.o.d. : 6.25 Tolerance : \div 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 13.65

Tolerance mm : \leftarrow 0.05

Del. quantity cm3/1000 strokes : 160.5	Tolerance cm3/1000 strokes : 8.0 Check tolerance
Tolerance cm3/1000 strokes : + 1.0	cm3/1000s. : 12.0
Check tolerance cm3/1000s. : +- 4.0	CONTROL LEVER
Spreed	control lever position degree : 117.0
Tolerance cm3/1000 strokes : 8.0	tolerance degree : +- 6.0 RATED SPEED
Check tolerance cm3/1000s. : 12.0	rack travel mm : 12.60 Rated speed rpm : 1325 Tolerance 1/min : + 15
Rated speed rpm : 420	rack travel mm : 4.00 Rated speed rpm : 1480 Tolerance 1/min : +- 5
Rack travel in mm: 6.00	0.50
Tolerance mm : + 0.10 + Del. quantity +	rack travel mm : 0.50 Tolerance mm : +- 0.50
cm3/1000 strokes : 15.0	Rated speed rpm : 1550
Tolerance cm3/1000 strokes : + 3.0	
Check tolerance + 5.0 +	
Spreed	LOW IDLE
Tolerance +	
cm3/1000 strokes : 4.0 + Check tolerance +	control lever
cm3/1000s. : 8.0	position degree : 71.0 tolerance degree : + 6.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Control lever difference Grad : 46.0 tolerance degree : +- 6.0
	Setting point w/out bumper spring
GUIDE SLEEVE POSITION	Rated speed rpm : 300
control lever position degree : VH	CRT mm min. : > 5.80
†	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 420 rack travel mm : 6.00
Rated speed rpm : 1250	Tolerance mm : + 0.10
Aneroid pressure + hPa : 800 +	Rated speed rpm : 425
Del. quantity	Nated Speed Ipili . 425
cm3/1000 strokes : 160.5	TODOUE CONTROL
Tolerance + 1.0 + 1.0	TORQUE CONTROL Rated speed rpm : 1250
Check tolerance +	rack travel mm : 13.65
cm3/1000s. : + 4.0 + Spreed	Tolerance mm : +- 0.05

Rated speed rpm rack travel mm		† Tolerance + cm3/1000 strokes : 8.0
Tolerance mm	: ← 0.10	+ Check tolerance
Rated speed rpm	. 500	cm3/1000s. : 12.0
rack travel mm	: 11.60	
Tolerance mm		Aneroid pressure
		hPa : - Rated speed rpm : 1250
ANEROID/ALTITUDE		+ Del. quantity
COMPENSATOR TEST		cm3/1000 strokes : 88.0 Tolerance
SETTING		cm3/1000 strokes : + 1.0 Check tolerance
Rated speed rpm	: 1250	+ cm3/1000s. : +- 4.0
Pressure hPa	: 800	<u> </u>
Rated speed rpm Pressure hPa	: 1250 : –	STARTING FUEL DELIVERY
rack travel mm		Set starting CRT at K-cam.
Tolerance mm	: ← 0.20	†
MEASUREMENT		Rated speed rpm : 100
	4000	rack travel mm : 14.10
Rated speed rpm	: 1250	Tolerance mm : +- 0.50 Del. quantity
Pressure hPa	: 340	+ cm3/1000 strokes : 155.0
rack travel mm	: 12.70	+ Tolerance
Tolerance mm	: ← 0.30	+ cm3/1000 strokes : +- 20.0 + Check tolerance
Pressure hPa		+ cm3/1000s. : +- 25.0
rack travel mm	: 10.50	†
Tolerance mm	: ← 0.20	-
Start interlock		LOW IDLE
Rated speed rpm Rated speed rpm		Rated speed rpm : 420
nated speed i pili	. \ 200	Rack travel in mm: 6.00
Check		+ Tolerance mm : + 0.10
speed 1/min Check	: > 80	+ Del. quantity + cm3/1000 strokes : 15.0
speed 1/min	: < 290	Tolerance
		+ cm3/1000 strokes : + 3.0
FUEL DELIVERY CHA	ARACTERISTICS	
TOCK DECITED TO	WWW. CHIEF TOO	Spreed
A	· · · · · · · · · · · · · · · · · · ·	+ Tolerance + cm3/1000 strokes : 4.0
Aneroid pressure hPa	: 800	Check tolerance
Rated speed rpm		- cm3/1000s. : 8.0
Del. quantity	: 131.5	1
cm3/1000 strokes Tolerance	: 131.5	Ţ
cm3/1000 strokes	: ← 3.0	+
Check tolerance cm3/1000s.	: +- 6.0	+ End of test specification sheet
Spreed		- LIN OF LEST Specification sheet
•		•

Not remarks

Pafer to Service Info for test and . Justment instructions. See microcard(s) W400/...

Edition Test oil : 17,11,97 : ISO 4113

Combination No. : 0 400 074 871

Injection pump

Pump designation : PES4M55C32ORS192 EP type number : 0 410 054 932

Governor

Governer design. : RSF360/1900M89 Governer no. : 0 420 021 294

Cust. part No. :

Customer-spec. information

Customer : MB-PKW Motor

Power KW

: 0M601 D23 LA

: 72.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C 40 Tolerance °C : +-2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde

: 1 688 901 111 assembly

Opening pressure

148.5 Tolerance bar $: \leftarrow 1.5$

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

1.75 Prestroke mm : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 21.00 Tolerance mm : +- 1.00

Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Start of delivery blocking

*NW after s.o.d. : 16.50 Tolerance : +- 0.20

Check

tolerance *NW : +- 0.30

Barrel no. : 1

BASIC SETTING

900 Rated speed rpm :

Rack travel in mm: 14.65 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 64.1

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance

: +cm3/1000s. 1.5

Spreed

Tolerance cm3/1000 strokes : 2.5	Tolerance mm : +- 0.60
Check tolerance cm3/1000s. : 3.0	SET IDLE CONTROL LEVER POSITION
Rated speed rpm : 360	Rated speed rpm : 900
Rack travel in mm : 5.35 + Tolerance mm : + 0.10 +	CRT mm max. : 1.85
Del. quantity + cm3/1000 strokes : 6.5 +	LOW IDLE
Tolerance + 0.5 + Spreed +	control lever position degree : 8.0
Tolerance cm3/1000 strokes : 1.0	tolerance degree : +- 2.0
(B) SETTING OF INJECTION PUMP	Setting point w/out bumper spring Rated speed rpm : 360 rack travel mm : 5.35
WITH GOVERNOR	SET IDLE AUXILIARY SPRING
IDLE STAGE	Rated speed rpm : 500 rack travel mm : 3.50
Rack travel in mm: 5.00	Tolerance mm : +- 0.10
Tolerance mm : + 0.10	Load pick-up Rated speed rpm : 150
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 150 rack travel mm : 11.50
Rated speed rpm : 900 Ref. pressure	Rated speed rpm : 900
ALDA / ADA hPa : 1900 Del. quantity cm3/1000 strokes : 64.1	CRT mm max. : 1.85
Tolerance cm3/1000 strokes : + 0.5	rack travel mm : 5.35 Rated speed rpm : 360
Check tolerance cm3/1000s. : + 1.5	TORQUE CONTROL
Spreed Tolerance cm3/1000 strokes : 2.5	Rated speed rom : 900
Check tolerance cm3/1000s. : 3.0	rack travel mm : 14.65 Tolerance mm : + 0.05
RATED SPEED	Rated speed rpm : 1500 rack travel mm : 13.80 Tolerance mm : + 0.10
control lever position degree : 50.0	Rated speed rpm : 1900 rack travel mm : 13.20 Tolerance mm : +- 0.15
Rated speed rpm : 2200 + rack travel mm : 9.35 + 0.30	Rated speed rpm : 900
Tolerance mm : + 0.20 Rated speed rpm : 2700	rack travel mm : 11.05 Tolerance mm : + 0.10
Rated speed rpm : 2700 + rack travel mm : 0.50 +	

		+ Ref. pressure	
		ALDA / ADA hPa	: 1100
DJUSTMENT TEST A	ADA/ALDA	+ Rated speed rpm	: 900
		† Del. quantity	
TTING		+ cm3/1000 strokes	: 43.5
		† Tolerance	
ed speed rpm	: 900	+ cm3/1000 strokes	: +- 0.5
. pressure		+ Check tolerance	
A / ADA hPa	: 1650	→ cm3/1000s.	: +- 1.5
k travel mm	: -0.50	→ Spreed	
erance mm	: ← 0.20	+ Tolerance	
		+ cm3/1000 strokes	: 2.5
SUREMENT		+ Check tolerance	
		+ cm3/1000s.	: 3.0
ed speed rpm	: 900	1	
. pressure	. ,	Ref. pressure	
A / ADA hPa	: 1100	ALDA / ADA hPa	: 1100
k travel mm	: -3.60	+ Rated speed rpm	
			. 700
erance mm	: ← 0.10	+ Del. quantity	. /7 5
		+ cm3/1000 strokes	: 43.5
. pressure	7	+ Tolerance	
A / ADA hPa	: 750	+ cm3/1000 strokes	
k travel mm	: -5.40	+ Check tolerance	
erance mm	: ← 0.20	+ cm3/1000s.	: +- 1.5
		Spreed	
		+ Tolerance	
			: 2.5
_ DELIVERY CHA	NRACTERISTICS	+ Check tolerance	
2221211 VIII		+ cm3/1000s.	: 3.0
f. pressure		1	. 5.0
A / ADA hPa	: 1900	I	
		<u> </u>	
ed speed rpm	. 1500	T UTCH TNE	
. quantity	. (4.)	+ HIGH IDLE	
/1000 strokes	: 01.4	† 5.4	
erance		+ Ref. pressure	4655
3/1000 strokes	: ← 0.8	+ ALDA / ADA hPa	
ck tolerance		+ Rated speed rpm	
7/1 000 \$.	: +- 1.8	+ rack travel mm	: 9.35
eed		+ Tolerance mm	: ← 0.20
Lerance		<pre>Del. quantity</pre>	
1/1000 strokes	: 2.5	+ cm3/1000 strokes	: 38.9
ck tolerance		Tolerance	
3/1000s.	: 3.0	cm3/1000 strokes	: +- 2.0
,, , ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	. 5.0	+ Check tolerance	
n paccupa		- cm3/1000s.	: +- 3.0
. pressure	: 1900		· +- J.U
A / ADA hPa		+ Spreed	
ed speed rpm	: 1900	+ Tolerance	
eed		+ cm3/1000 strokes	: 2.5
quantity		+ Check tolerance	
1000 strokes	: 58.6	+ cm3/1000s.	: 3.0
rance		+	
1000 strokes	: +- 1.0		
ck tolerance			IVERY
/1 000 S.	: ← 2.0	1	
		Rated speed rpm	: 100
eed		+ rack travel mm	
erance	. 25	•	
/1000 strokes	: 2.5	+ Tolerance mm	: ← 1.50
ck tolerance /1 000 S.	- -	+ Del. quantity	
	: 3.0	+ cm3/1000 strokes	: 64.3

Tolerance cm3/1000 strokes : \leftarrow 6.0 Check tolerance cm3/1000S. : +-7.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 6.0 LOW IDLE Rated speed rpm 360 5.35 rack travel mm : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 7.8 Check tolerance cm3/1000s. 2.3 Spreed Check tolerance cm3/1000s. 1.5 control lever position degree : > 42.00 control lever position degree : < 39.50 SETTING PNEUMATIC FAST IDLE (PLA) (PLA) POSITION control lever position degree : 8.0 tolerance degree : +-SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) Rated speed rpm : 360 11.70 Rack travel in mm: Tolerance mm: \leftarrow 0.70 1.80 Current A :

Rack travel in mm: 0.50 Tolerance mm : + 0.60Current short-3.00 duration A Starting test Rated speed rpm : 100 1,80 Current A : TESTING & SETTING RACK TRAVEL SENSOR **POSITION** Test with KDEP-P400 TESTING 900 Rated speed rpm : Ref. pressure ALDA / ADA hPa 1900 Set quantity with control lever cm3/1000 strokes : **ે** 24.9 Tolerance cm3/1000 strokes : \leftarrow 0.5 1.636 Voltage Volt : + 0.003Tolerance Volt Check tolerance Volt : + 0.001ADJUSTMENT 900 Rated speed rpm Ref. pressure ALDA / ADA hPa 1900 Rack travel in mm Voltage Volt 2.615 Tolerance Volt : + 0.045Check tolerance Volt : + 0.060TESTING PNEUMATIC SHUTOFF DEVICE Rated speed rpm 360 -450.0Vacuum hPa

End of test specification sheet

Rated speed rpm : 2700

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 400 074 872

Injection pump

Pump designation : PES4M55C32ORS192 EP type number : 0 410 054 932

Governor

Governer design. : RSF360/1900M90 Governer no. : 0 420 021 295

Cust. part No. :

Customer—spec. information Customer : MB-PKW

Motor : OM601 D23 LA

Power KW : 72.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 469 990 351

Inlet press. bar : 1.0

Test nozzle holde

assembly : 1 688 901 111

Opening pressure

bar : 148.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 1.75
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 21.00 Tolerance mm : +- 1.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Start of delivery blocking

*NW after s.o.d. : 16.50 Tolerance : + 0.20

Check

tolerance $^{\circ}NW$: \leftarrow 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.65 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 64.1

Tolerance

cm3/1000 strokes : \leftarrow 0.5

Check tolerance

cm3/1000s. : + 1.5

Spreed

Tolerance cm3/100G strokes : 2.5	Tolerance mm : +- 0.60
Check tolerance cm3/1000S. : 3.0	SET IDLE CONTROL LEVER POSITION
Rated speed rpm : 360	Rated speed rpm : 900
Rack travel in mm: 5.35 Tolerance mm: + 0.10	CRT mm max. : 1.85
Del. quantity cm3/1000 strokes : 6.5	LOW IDLE
Tolerance cm3/1000 strokes : + 0.5	control lever
Spreed Tolerance cm3/1000 strokes : 1.0	position degree : 8.0 tolerance degree : +- 2.0
Cm3/1000 strokes: 1.0	Setting point w/out bumper spring Rated speed rpm : 360
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 5.35
	SET IDLE AUXILIARY SPRING
IDLE STAGE	Rated speed rpm : 500 rack travel mm : 3.50
Rack travel in mm: 5.00	Tolerance mm : + 0.10
Tolerance mm : + 0.10	Load pick-up
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 150 rack travel mm : 11.50
Rated speed rpm : 900 Ref. pressure	Rated speed rpm : 900
ALDA / ADA hPa : 1900 + Del. quantity +	CRT mm max. : 1.85
cm3/1000 strokes : 64.1 Tolerance	rack travel mm : 5.35 Rated speed rpm : 360
cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 1.5	
Spreed Tolerance	TORQUE CONTROL
cm3/1000 strokes : 2.5 + Check tolerance +	Rated speed rpm : 900 rack travel mm : 14.65 Tolerance mm : +- 0.05
cm3/1000s. : 3.0	
RATED SPEED	Rated speed rpm : 1500 rack travel mm : 13.80 Tolerance mm : + 0.10
control lever position degree : 50.0	Rated speed rpm : 1900 rack travel mm : 13.30 Tolerance mm : +- 0.15
Rated speed rpm : 2200 + rack travel mm : 9.35 +	Rated speed rpm : 500
Tolerance mm : + 0.20	rack travel mm : 16.10 Tolerance mm : +- 0.40
Rated speed rpm : 2700 + rack travel mm : 0.50 +	Rated speed rpm : 900

rack travel mm Tolerance mm	· · · · · · · · · · · · · · · ·	+ Check tolerance + cm3/1000s.	: 3.0
		Ref. pressure	
ADJUSTMENT TEST A	MA/ALDA	ALDA / ADA hPa	
SETTING		Rated speed rpm Del. quantity	; 900
		+ cm3/1000 strokes	: 43.5
Rated speed rpm Ref. pressure	: 900	+ Tolerance + cm3/1000 strokes	· +- 0.5
ALDA / ADA hPa	: 1650	+ Check tolerance	. (0.)
rack travel mm	: -0.50	- cm3/1000s.	: + 1.5
Tolerance mm	: +- 0.20	+ Spreed + Tolerance	
MEASUREMENT		cm3/1000 strokes	: 2.5
	000	+ Check tolerance	7.0
Rated speed rpm Ref. pressure	: 900	t cm3/1000s.	: 3.0
ALDA / ADA hPa	: 1100	Ref. pressure	
rack travel mm	: -3.60	ALDA / ADA hPa Rated speed rpm	: 1900
Tolerance mm	: + 0.10	+ Rated speed rpm + Del. quantity	: 500
Ref. pressure		+ cm3/1000 strokes	: 67.1
ALDA / ADA hPa		+ Tolerance	2.0
rack travel mm Tolerance mm	: -5.40 : +- 0.20	+ cm3/1000 strokes + Check tolerance	
rocer drive dan	0.00	+ cm3/1000s.	: ← 3.0
	·	Pof prossure	
FUEL DELIVERY CHA	RACTERISTICS	Ref. pressure	: 1100
		Rated speed rpm	: 900
Ref. pressure ALDA / ADA hPa	: 1900	+ Del. quantity + cm3/1000 strokes	: 43.5
Rated speed rpm		+ Tolerance	. 43.3
Del. quantity		+ cm3/1000 strokes	: 0.5
cm3/1000 strokes Tolerance	: 61.1	+ Check tolerance + cm3/1000s.	: + 1.5
cm3/1000 strokes	: +- 0.8	Spreed	
Check tolerance		+ Tolerance	2.5
cm3/1000s. Spreed	: + 1.8	+ cm3/1000 strokes + Check tolerance	: 2.5
Tolerance		- cm3/1000s.	: 3.0
cm3/1000 strokes	: 2.5	+	
Check tolerance cm3/1000s.	: 3.0	İ	
		+ HIGH IDLE	
Ref. pressure	: 1900	Pof proceurs	
ALDA / ADA hPa Rated speed rpm		+ Ref. pressure + ALDA / ADA hPa	: 1900
Spreed		+ Rated speed rpm	: 2200
Del. quantity cm3/1000 strokes	: 58.6	+ rack travel mm + Tolerance mm	: 9.35 : +- 0.20
Tolerance	. 50.0	+ Del. quantity	0.20
cm3/1000 strokes	: + 1.0	+ cm3/1000 strokes	: 38.9
Check tolerance cm3/1000s.	: +- 2.0	+ Tolerance + cm3/1000 strokes	: +- 2.0
Spreed		+ Check tolerance	
Tolerance	. 2 5	+ cm3/1000s.	: + 3.0
cm3/1000 strokes	: 2.5	+ Spreed	
		1	

Tolerance Rated speed rpm : 2700 cm3/1000 strokes : 2.5 Check tolerance Rack travel in mm : 0.50cm3/1000S. 3.0 Tolerance mm : \leftarrow 0.60 Current short-3.00 STARTING FUEL DELIVERY duration A : Rated speed rpm 100 Starting test 21.60 rack travel mm Rated speed rpm : 100 Tolerance mm : +- 1.50 Del. quantity cm3/1000 strokes : 64.3 1.80 Current A : Tolerance cm3/1000 strokes : +-6.0 Check tolerance TESTING & SETTING RACK TRAVEL SENSOR cm3/1000S. 7.0 : +-POSITION Test with KDEP-P400 Spreed Tolerance **TESTING** 900 cm3/1000 strokes : 6.0 Rated speed rpm Check tolerance Ref. pressure 1900 cm3/1000S. 6.0 ALDA / ADA hPa Set quantity with control lever cm3/1000 strokes : 24.9 Tolerance cm3/1000 strokes : +- 0.5LOW IDLE : 1.636 Voltage Volt 360 Tolerance Volt : + 0.003Rated speed rpm rack travel mm 5.35 Check tolerance : + 0.001: + 0.10Volt Tolerance mm ADJUSTMENT Del. quantity cm3/1000 strokes : 7.8 900 Rated speed rpm Check tolerance Ref. pressure ALDA / ADA hPa 1900 2.3 cm3/1000s. Spreed Rack travel in mm 2.615 Check tolerance Voltage Volt : + 0.045cm3/1000S. 1.5 Tolerance Volt Check tolerance : + 0.060Volt SETTING PNEUMATIC FAST IDLE (PLA) TESTING PNEUMATIC SHUTOFF DEVICE (PLA) POSITION Rated speed rpm 360 Vacuum hPa -450.0control lever 8.0 position degree : tolerance degree : +-2.0 End of test specification sheet SETTING/TESTING ELECTRONIC IDLE REGULATION (ELR) Rated speed rpm : 360 11.70 Rack travel in mm :

Current A

Tolerance mm : + 0.70

1.80

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 14.11.97 : ISO 4113

Combination No.

: 0 401 846 843

Injection pump

Pump designation : PE6P12DA72DRS3069

EP type number

: 0 411 826 712

Governor

Governer design. : RQV300...1000PA501

: -4

Governer no.

: 0 421 813 609

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT

Motor

: 8210.22.371

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

208.5

Tolerance bar

Test lines : 1 680 750 075

Outside diameter :

8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 3.55

Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : \leftarrow 1.50

: 1-5-3-6-2-Firing order

: 4

: 0-60-120-180-240 Phasing

: -300

: + - 0.50Tolerance

Check

tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.55

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 206.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

CO4

Tolerance cm3/1000 strokes : 5.0	- Aneroid pressure - hPa : 700 - Del. quantity
Check tolerance cm3/1000s. : 9.0	- cm3/1000 strokes : 206.0 - Tolerance - cm3/1000 strokes : - 1.0
	- Check tolerance - cm3/1000s. : +- 4.0
Rated speed rpm : 300	- Spreed - Tolerance
Rack travel in mm : 6.20 Tolerance mm : + 0.10	- cm3/1000 strokes : 5.0 - Check tolerance
Del. quantity cm3/1000 strokes : 20.0 + Tolerance	- cm3/1000s. : 9.0
cm3/1000 strokes : +- 3.0 Check tolerance	- CONTROL LEVER
cm3/1000S. : +- 6.0	- control lever
Tolerance cm3/1000 strokes : 8.0	position degree : 120.0 tolerance degree : +- 4.0
Check tolerance cm3/1000s. : 12.0	- RATED SPEED - rack travel mm : 11.50 - Rated speed rpm : 1045
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- Rated speed rpm : 1045 - Tolerance 1/min : +- 5 - Check - speed 1/min : +- 10
GUIDE SLEEVE TRAVEL	rack travel mm : 4.00
Rated speed rpm : 1000 + guide sleeve +	Rated speed rpm : 1145 Tolerance 1/min : +- 15 Check
travel mm : 8.10 + Tolerance mm : + 0.15	speed 1/min : +- 20
Rated speed rpm : 325 guide sleeve	rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1250
travel mm : 1.70 + Tolerance mm : + 0.20 + Tolerance mm	•
Rated speed rpm : 450 guide sleeve travel mm : 3.10 Tolerance mm : + 0.20	LOW IDLE
Rated speed rpm : 800 - guide sleeve	control lever position degree : 67.0 tolerance degree : +- 4.0
travel mm : 5.90 Tolerance mm : + 0.20	Setting point w/out bumper spring
Rated speed rpm : 1300 guide sleeve	Rated speed rpm : 100
travel mm : 11.50 + Tolerance mm : +- 0.50	CRT mm min. :> 7.70 Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 300
Rated speed rpm : 1000	rack travel mm : 6.20 Tolerance mm : + 0.10

rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance		
Rated speed rpm : 1000 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 rack travel mm : 12.60 Tolerance mm : + 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 Pressure hPa : - 0.05 Rated speed rpm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 Aneroid pressure hPa : - 0.05	Rated speed rpm	: 370
ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 Pressure hPa : - rack travel mm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	Rated speed rpm rack travel mmm	: 12.55
SETTING Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 Pressure hPa : - rack travel mm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	rack travel mm	: 500 : 12.60 : ← 0.10
Rated speed rpm : 500 Pressure hPa : 700 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 Pressure hPa : - rack travel mm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance		
Pressure hPa : 700 rack travel mm : 12.55 Tolerance mm : + 0.05 Rated speed rpm : 500 Pressure hPa : - rack travel mm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	SETTING	
Pressure hPa : - rack travel mm : 9.80 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	Pressure hPa rack travel mm	: 700
Rated speed rpm : 500 Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	Pressure hPa rack travel mm	: – : 9.80
Pressure hPa : 230 rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	MEASUREMENT	
rack travel mm : 10.85 Tolerance mm : + 0.15 Pressure hPa : 280 rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	Rated speed rpm	: 500
rack travel mm : 11.85 Tolerance mm : + 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance		: 10.85
Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance		: 11.85
hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 132.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	FUEL DELIVERY CHA	ARACTERISTICS
cm3/1000 strokes : +- 1.0 Check tolerance	hPa Rated speed rpm Del. quantity cm3/1000 strokes	
	cm3/1000 strokes Check tolerance cm3/1000s.	

Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.		100 200.0 15.0 19.0	
LOW IDLE		· · · · · · · · · · · · · · · · · · ·	
Rated speed rpm	:	300	
Rack travel in mm Tolerance mm	: : +-	6.20 0.10	
Del. quantity cm3/1000 strokes Tolerance	:	20.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s. Spreed	: +-	6.0	
Tolerance cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.97 : ISO 4113 Test oil

Combination No. : 0 401 848 828

Injection pump

Pump designation : PE8P12OA52O/4LS385O

EP type number : 0 411 828 723

Governor

Governer design. : RQ300/900PA1230

Governer no. : 0 421 801 792

Cust. part No.

Customer-spec. information

Customer : DHI

: D2848LE Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

40 temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 025

1.5 Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar : +- 1.5 Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

4.05 Prestroke mm Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : **←** 1.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

: + 0.50Tolerance

Check

: +- 0.75 tolerance "NW

Start of delivery mark

: + 0.50Tolerance

Check

: **←** 0.75 tolerance °NW

: 8 Barrel no.

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 12.20 Tolerance mm : \leftarrow 0.05

Del. quantity

cm3/1000 strokes : 215.0

	•	•
Tolerance	t	guide sleeve
cm3/1000 strokes	: ← 1.0 +	travel mm : 6.00
	 	Tolerance mm : +- 0.10
Check tolerance	+	
	: +- 4.0	Rated speed rpm : 1050
	1	guide sleeve
Spreed		travel mm : 11.50
opi eed	T	Tolerance mm : +- 0.50
T.1	T	Toterance mm : + 0.50
Tolerance	1	
cm3/1000 strokes	: 6.0 	
	+	GUIDE SLEEVE POSITION
Check tolerance	+	
cm3/1000s.	: 10.0 +	
	+	control lever
		position degree : 109
	1	Rated speed rpm : 600
Rated speed rpm :	: 300 ∔	nated opeca i più i oco
Rated speed ipin	· 500	Rack travel in mm : 20.00
Bash Assess 5	. 7/O	
Rack travel in mm :		Tolerance mm : + 0.80
Tolerance mm :	: ← 0.10 +	
Del. quantity	+	
cm3/1000 strokes	: 42.0 }	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	-	
cm3/1000 strokes	· + 3 n	Rated speed rpm : 850
Check tolerance	1	Aneroid pressure
	. , , , o T	
	: +- 6.0 +	hPa : -
Spreed	+	Del. quantity
Tolerance	+	cm3/1000 strokes : 215.0
cm3/1000 strokes :	: 6.0 +	Tolerance
Check tolerance	1	cm3/1000 strokes : +- 1.0
	40.0	
~m 1000000</td <td>• 10 0 4</td> <td>Check tolerance</td>	• 10 0 4	Check tolerance
cm3/1000s.	: 10.0	Check tolerance
cm3/1000S.	: 10.0	$cm3/1000s$. : \leftarrow 4.0
	+	cm3/1000s. : +- 4.0 Spreed
(B) SETTING OF INJE	+	cm3/1000s. : +- 4.0 Spreed Tolerance
	+	cm3/1000s. : +- 4.0 Spreed
(B) SETTING OF INJE	+	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0
(B) SETTING OF INJE	+	cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance
(B) SETTING OF INJE	ECTION PUMP	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0
(B) SETTING OF INJE	ECTION PUMP	cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL	ECTION PUMP	cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm :	ECTION PUMP	<pre>cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0</pre>
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve	ECTION PUMP	cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance
(B) SETTING OF INJECTION OF INJ	932 6.37	<pre>cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0</pre> CONTROL LEVER
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm :	ECTION PUMP	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever
(B) SETTING OF INJECTION OF INJ	932 6.37	<pre>cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0</pre> CONTROL LEVER
(B) SETTING OF INJECTION OF INJ	932 - 6.37 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm :	932 6.37	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve	932 - 6.37 - 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm :	932 + 6.37 + 0.10 + 300 + 1.44	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm :	932 - 6.37 - 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : guide sleeve travel mm : Tolerance mm : Tolerance mm :	932 + 0.10 + 0.10 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm :	932 + 6.37 + 0.10 + 300 + 1.44	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : guide sleeve travel mm : Tolerance mm : Tolerance mm :	932 + 0.10 + 0.10 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve	932 6.37 + 0.10 300 1.44 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm guide sleeve travel mm Tolerance mm : Rated speed rpm guide sleeve travel mm Tolerance mm : Rated speed rpm guide sleeve travel mm Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 6.00	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm guide sleeve travel mm Tolerance mm : Rated speed rpm guide sleeve travel mm Tolerance mm : Rated speed rpm guide sleeve travel mm Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 6.00 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm :	932 6.37 + 0.10 300 1.44 + 0.10 880 4 6.00 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve	932 6.37 + 0.10 300 1.44 + 0.10 880 + 0.10 433	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5 rack travel mm : 4.00
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 + 0.10 433 4.94	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 950
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 + 0.10 433	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5 rack travel mm : 4.00
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 + 0.10 433 4.94	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 950
(B) SETTING OF INJEWITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm : Rated speed rpm : guide sleeve travel mm : Tolerance mm :	932 6.37 + 0.10 300 1.44 + 0.10 880 6.00 + 0.10 433 4.94 + 0.10	cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0 CONTROL LEVER control lever position degree : 32.0 tolerance degree : + 4.0 control lever position degree : 94.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.20 Rated speed rpm : 905 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 950

Tolerance mm Rated speed rpm	: ← 0.50 : 1100
LOW IDLE	
control lever position degree tolerance degree	: 75.0 : + 4.0
control lever position degree tolerance degree	: 13.0 : + 4.0
Setting point w/c	out bumper spring
Rated speed rpm	: 200
CRT mm min.	; > 9.80
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 7.40 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 420 : + 20
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 850 : 12.20 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 650 : 12.20 : + 0.10
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 220
Check speed 1/min	: > 80
Check speed 1/min	: < 240

Aneroid pressure hPa Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 218.0 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s.: +--6.0 STARTING FUEL DELIVERY Del. quantity cm3/1000 strokes : 190.0 Tolerance cm3/1000 strokes : +- 20.0 Check tolerance cm3/1000s. : +- 24.0 LOW IDLE Rated speed rpm : 300 Rack travel in mm : 7.40 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 42.0 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 07.11.97 Test oil : ISO 4113

Combination No. : 0 401 849 715

Injection pump

Pump designation : PE10P120A520/4L\$3830

EP type number : 0 411 829 704

Governor

Governer design. : RQV250...1150PA668

: -7

Governer no. : 0 421 813 481

Cust. part No. :

Customer—spec. information Customer : MAN

Motor : D2840LE Power KW : 463.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter: 1.5 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50Tolerance mm : $\leftarrow 1.50$

Firing order : 10-9-4-1-8

: - 7- 6- 3- 5 : - 2

: - 2

Phasing : 0-45-72-117-144

: -189-216-261-288

: -333

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.25 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 206.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 250
Rack travel in mm Tolerance mm	: 7.10 : + 0.10
Del. quantity cm3/1000 strokes	: 20.0
Tolerance cm3/1000 strokes Check tolerance	: ← 3.0
cm3/1000s. Spreed	: +- 6.0
	: 8.0
Check tolerance cm3/1000s.	: 12.0
(B) SETTING OF INJ WITH GOVERNOR	ECTION PUMP
GUIDE SLEEVE TRAVE	L
Rated speed rpm guide sleeve travel mm	: 1215 : 9.00

GUIDE SLEEVE TRAVEL		
Rated speed rpm guide sleeve	: 1215	
travel mm Tolerance mm	: 9.00 : + 0.15	
Rated speed rpm guide sleeve	: 250	
travel mm Tolerance mm	: 1.05 : + 0.20	
Rated speed rpm guide sleeve	: 610	
travel mm Tolerance mm	: 5.50 : + 0.25	
Rated speed rpm guide sleeve	: 1590	
travel mm Tolerance mm	: 11.50 : + 0.50	

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150 Aneroid pressure

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +- 1.0 : +- 4.0
CONTROL LEVER	
control lever position degree tolerance degree	: 122.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 11.20 : 1195 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1330 : + 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 1450
LOW IDLE	
control lever position degree tolerance degree	: 68.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 100
CRT mam min.	: > 8.60
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 7.10 : +- 0.10
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 12.25 : + 0.05

hPa

Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 200

Check

speed 1/min : > 80

Check

speed 1/min : < 220

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : +- 0.75

Del. quantity

cm3/1000 strokes : 200.0

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s. : + 14.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.10Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 20.0

Tolerance

cm3/1000 strokes : \leftarrow 3.0

Check tolerance

cm3/1000s. : + 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 17.11.97

Test oil

: ISO 4113

Combination No. : 0 402 044 700

Injection pump

Pump designation : PES4P110A320RS3350

EP type number : 0 412 014 700

Governor

Governer design. : RQV350...1400PA1221K

Governer no. : 0 421 815 472

Cust. part No. : 16700-D8703 / M

: -2004

Customer-spec. information

Customer : NMI

Motor

: B4.40 EURO II

Power KW

: 101.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: **←** 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter:

2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ← 1.0

Prestroke mm : 4.55 Tolerance mm : + 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm: 20.50

Tolerance mm : +- 0.50

Firing order : 4-2-1-3

Phasing : 0-90-180-270 Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : 180.00

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 15.40

Tolerance mm : \leftarrow 0.05

Del. quantity	t t	Tolerance mm : +- 0.25
cm3/1000 strokes	: 178.0 +	
		Rated speed rpm : 1730
Tolerance	t .	guide sleeve
cm3/1000 strokes	: ← 1.0 +	travel mm : 13.50
~1		Tolerance mm : +- 0.50
Check tolerance	†	
cm3/1000s.	: ← 3.0 +	CHANG OF CALCADO
0		GUIDE SLEEVE POSITION
Spreed	†	
Tolerance	Ī	control lever
cm3/1000 strokes	: 5.0	position degree : - 1
CIID/ (UOU SCHOKES	· 5.0	Rated speed rpm : 1515
Check tolerance		Nated Speed Pall : 1919
cm3/1000s.	: 9.0	Rack travel in mm : 14.50
CIID7 10003.	. ,	Tolerance mm : +- 1.30
		TOTAL MAIN . T. 30
	1	
Rated speed rpm	: 350	FULL LOAD DELIVERY AT FULL LOAD STOP
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<u></u>	
Rack travel in mo	n: 9.40 +	Rated speed rpm : 1300
Tolerance mm	: + 0.10 +	Aneroid pressure
Del. quantity	+	hPa : 1500
cm3/1000 strokes	: 31.0	Del. quantity
Tolerance	+	cm3/1000 strokes : 178.0
cm3/1000 strokes	: ← 2.5 +	Tolerance
Check tolerance	+	cm3/1000 strokes : $+-$ 1.0
cm3/1000s.	: ← 5.0 +	Check tolerance
Spreed	+	cm3/1000s. : +- 3.0
Tolerance	+	Spreed
cm3/1000 strokes	: 6.0 +	Tolerance
Check tolerance	+	cm3/1000 strokes : 5.0
cm3/1000s.	: 10.0 +	Check tolerance
	†	cm3/1000s. : 9.0
(-)	11505501 5100	
(B) SETTING OF IN	MECLION DOWD	
WITH GOVERNOR	†	CONTROL LEVED
	Ť	CONTROL LEVER
CUIDE OF EENE TON	 †	control lever
GUIDE SLEEVE TRAV	761	position degree : 65.0
Rated speed rpm	: 1417	tolerance degree : +- 4.0
guide sleeve	· '-''	total differ degree The
travel mm	: 9.99	control lever
Tolerance mm	: + 0.15	position degree : 122.0
roceratice min	1	tolerance degree : + 4.0
Rated speed rpm	: 350	
guide sleeve	1	RATED SPEED
travel mm	: 1.46	rack travel mm : 14.40
Tolerance mm	: + 0.20	Rated speed rpm : 1410
	+	Tolerance 1/min : +- 5
Rated speed rpm	: 994	
guide sleeve	+	rack travel mm : 4.00
travel mm	: 6.77	Rated speed rpm : 1585
Tolerance mm	: ← 0.25 +	Tolerance 1/min : + 15
	+	
Rated speed rpm	: 610	rack travel mm : 0.50
guide sleeve	+	Tolerance mm : + 0.50
travel mm	: 3.96 +	Rated speed rpm : 1640

	‡	Pressure hPa rack travel mm Tolerance mm	
LOW IDLE		MEASUREMENT	0.10
	<u> </u>	Rated speed rpm	• 1300
control lever	+		
position degree : 82 tolerance degree : +- 4	:0 +	Pressure hPa rack travel mm Tolerance mm	: 14.30
control lever position degree : 26	.n ‡	Pressure hPa	: 520
tolerance degree : +- 4	.0	rack travel mm Tolerance mm	: 13.10
Setting point w/out bumper	spring		
Rated speed rpm : 250	1	Start interlock	
CRT mm min. : > 10.	70	Rated speed rpm	: > 100
Testing:	‡	Rated speed rpm	: > 270
_	. +	Check	
Rated speed rpm : 350	ļ, <u> </u>	speed 1/min Check	: > 80
rack travel mm : 9 . Tolerance mm : $+$ 0.	10 7	speed 1/min	: > 290
Rated speed rpm : 500	‡		
	<u> </u>	FUEL DELIVERY CHA	RACTERISTICS
TORQUE CONTROL	Ţ	·	
Rated speed rpm : 1300		Aneroid pressure	
rack travel mm : 15.	40 +	hPa	: 1500
Tolerance mm : + 0.	US +	Rated speed rpm Del. quantity	: 780
Rated speed rpm : 780	+	cm3/1000 strokes	: 154.0
rack travel mm : 13. Tolerance mm : + 0.	70	Tolerance	
Tolerance mm : $+$ 0.	15 +	cm3/1000 strokes	: +- 2.0
Rated speed rpm : 1000		Check tolerance cm3/1000s.	: +- 5.0
rack travel mm : 14.	30 I	Spreed	
Tolerance mm : +- 0.		Tolerance	
	+	cm3/1000 strokes	: 12.0
Rated speed rpm : 1250		Check tolerance	: 16.0
rack travel mm : 15. Tolerance mm : + 0.		cm3/1000s.	: 16.0
rocerance man U.	· ·		
	+	Aneroid pressure	. 1500
ANEROID/ALTITUDE COMPENSATOR TEST	†	hPa Rated speed rpm	: 1500 : 1000
COMPENSATOR TEST	I	Del. quantity	. 1000
SETTING	1	cm3/1000 strokes Tolerance	: 165.0
02171110	1	cm3/1000 strokes	: +- 3.0
Rated speed rpm : 1300		Check tolerance	
Pressure hPa : 1500	· · · · · · · · · · · · · · · · · · ·	cm3/1000s.	: +- 6.0
rack travel mm : 15. Tolerance mm : + 0.			
rocerance man U.	Ţ	Aneroid pressure	
Rated speed rpm : 1300	‡	hPa	: -

Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 136.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 200.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000s. : + 19.0

LOW IDLE

350 Rated speed rpm : Rack travel in mm : 9.40 Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 31.0 Tolerance cm3/1000 strokes : +-2.5 Check tolerance cm3/1000s.5.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump

Pump designation : PES4P110B720RS3383

EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9880216

Customer—spec. information
Customer : LIEBHERR

Motor : D 924 TI-E A2

Power KW : 149.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Tolerance l/h: +- 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 207.0 Tolerance bar : +- 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

x tength imi : 000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 4-2-1-3

Phasing : 0-90-180-270

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance $^{\circ}NW$: +- 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm: 13.85
Tolerance mm: + 0.05

Del. quantity cm3/1000 strokes : 203.0	Aneroid pressure hPa : 1500 Del. quantity
7olerance	cm3/1000 strokes : 203.0 Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s. : + 3.5	cm3/1000s. : +- 3.5 Spreed Tolerance
Tolerance	cm3/1000 strokes : 4.0 Check tolerance
cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
Rated speed rpm : 500	control lever position degree : 99.0 tolerance degree : + 4.0
Rack travel in mm : 4.60 + Tolerance mm : +- 0.10 +	RATED SPEED
Del. quantity	rack travel mm : 12.85
cm3/1000 strokes : 24.0 +	Rated speed rpm : 920 Tolerance 1/min : +- 5
cm3/1000 strokes : + 3.0	Total ance Triming
Check tolerance + 5.5 + 5.5	rack travel mm : 4.00 Rated speed rpm : 980
cm3/1000S. : +- 5.5 +- Spreed	Tolerance 1/min : +- 15
Tolerance +	0.85
cm3/1000 strokes : 4.5 + Check tolerance +	rack travel mm : 0.85 Tolerance mm : +- 0.55
cm3/1000s. : 7.5	Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00 Rated speed rpm : 1000
WITH GOVERNOR	Tolerance 1/min : +- 15
CUIDE OF ENGLISHED BOOTTION	
GUIDE SLEEVE POSITION	LOW IDLE
control lever	and I lave
position degree : -3 + Rated seed rpm : 800 +	control lever position degree : 80.0
+	tolerance degree : + 4.0
Rack travel in mm : 0.50 + Tolerance mm : + 0.20 +	Setting point w/out bumper spring
governor spring	Rated speed rpm : 500
pre-tension {- click setting x : 4.50 }	rack travel mm : 2.80 Tolerance mm : +- 0.10
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	-
Detect around arm : 990	Rated speed rpm : 500 rack travel mm : 4.60
Rated speed rpm : 880	Tolerance mm : + 0.10

rack travel mm Rated speed rpm Tolerance 1/min	: 595	† †	Check tolerance cm3/1000s.	: ← 6.0
			Aneroid pressure hPa	: 1500
TORQUE CONTROL Rated speed rpm rack travel mm	: 880 : 13.85	1	Rated speed rpm Del. quantity cm3/1000 strokes	
Tolerance mm	: +- 0.05	1	Tolerance cm3/1000 strokes	: +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 13.90	‡	Check tolerance cm3/1000s.	
Rated speed rpm rack travel mm	: 700 : 13.90	† †	Aneroid pressure	: -
Tolerance mm	: ← 0.10	+	Rated speed rpm Del. quantity	
ANEROID/ALTITUDE COMPENSATOR TEST			cm3/1000 strokes Tolerance cm3/1000 strokes	
07-77-7510		+	Check tolerance cm3/1000s.	: +- 3.5
SETTING		1		
Rated speed rpm Pressure hPa rack travel mm	: 1500	+	STARTING FUEL DEL	IVERY
Tolerance mm		+	Rated speed rpm rack travel mm	: 100 : 20.50
Rated speed rpm Pressure hPa	: -	+	Tolerance mm Del. quantity	: +- 0.50
rack travel mm Tolerance mm		+	cm3/1000 strokes Tolerance	
MEASUREMENT		+	cm3/1000 strokes Check tolerance cm3/1000s.	
Rated speed rpm	: 550	+		
Pressure hPa	: 830	+		
rack travel mm Tolerance mm	: 13.20 : +- 0.05	‡	LOW IDLE	
Pressure hPa rack travel mm	: 750 : 12.10	Ī	Rated speed rpm	: 500
Tolerance mm	: +- 0.20	+	Rack travel in mm Tolerance mm	
		‡	Del. quantity cm3/1000 strokes	: 24.0
FUEL DELIVERY CHA	RACTERISTICS	+	Tolerance cm3/1000 strokes	
Aneroid pressure	: 1500	‡	Check tolerance cm3/1000S. Spreed	
hPa Rated speed rpm		Ŧ	Tolerance	
Del. quantity cm3/1000 strokes		‡	cm3/1000 strokes Check tolerance	
Tolerance cm3/1000 strokes	: 3.0	+	cm3/1000s.	: 7.5

End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.11.97 Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump

Pump designation : PE6P130A320RS7282 EP type number : 0 412 636 825

Governor

Governer design. : RQV300...900PA1059

Governer no. : 0 421 814 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information
Customer : PENTA

Motor : TAD 1230 P

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 8.30 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

	t
Rack travel in mm : 11.55	Rated speed rpm : 315
Tolerance mm : + 0.05	+ guide sleeve
Toget diffe this	travel mm : 1.98
Del. quantity	Tolerance mm : +- 0.25
cm3/1000 strokes : 349.0	+
	Rated speed rpm : 365
Tolerance	+ guide sleeve
cm3/1000 strokes : $+-$ 1.5	travel mm : 2.54
	+ Tolerance mm : + 0.25
Check tolerance	† n
cm3/1000s. : \leftarrow 5.0	+ Rated speed rpm : 420
Sprand	+ guide sleeve + travel mm : 3.17
Spreed	+ Tolerance mm : +- 0.25
Tolerance	T roter arice inni
cm3/1000 strokes : 7.0	Rated speed rpm : 1210
	guide sleeve
Check tolerance	+ travel mm : 11.50
cm3/1000s. : 11.0	+ Tolerance mm : $+$ 0.50
	+
	+ GUIDE SLEEVE POSITION
Rated speed rpm : 300	†
7.00	†t. 1 .1
Rack travel in mm: 4.00	+ control lever
Toterance mm : + 0.10	<pre>position degree : - 1 Rated speed rpm : 980</pre>
Del. quantity cm3/1000 strokes : 23.0	Rated speed rpm : 980
Tolerance	Rack travel in mm : 16.50
	T Mack claver ill illil . 10.50
cm3/1000 etrobes . +- 3 0	\perp Tolerance mm $\cdot + 130$
cm3/1000 strokes : +- 3.0	Tolerance mm : +- 1.30
Check tolerance	Tolerance mm : +- 1.30
Check tolerance cm3/1000s. : +- 6.0	<u> </u>
Check tolerance	Tolerance mm : +- 1.30
Check tolerance cm3/1000S. : +- 6.0 Spreed	<u> </u>
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance
Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve travel mm : 1.81	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 CONTROL LEVER control lever
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve travel mm : 1.81 Tolerance mm : + 0.25	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve travel mm : 1.81 Tolerance mm : + 0.25 Rated speed rpm : 650	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 CONTROL LEVER control lever
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve travel mm : 1.81 Tolerance mm : + 0.25 Rated speed rpm : 650 guide sleeve	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 CONTROL LEVER control lever position degree : 61.0 tolerance degree : + 4.0
Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0 (B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25 Rated speed rpm : 300 guide sleeve travel mm : 1.81 Tolerance mm : + 0.25 Rated speed rpm : 650	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0

tolerance degree	: ← 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 10.50 : 915 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1000 : ← 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1100
LOW IDLE	
control lever position degree tolerance degree	
control lever position degree tolerance degree	: 18.0 : ← 4.0
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 4.00 : + 0.10
rack travel mm Rated speed rpm	: > 5.60 : 200
Rated speed rpm	: 365
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 700 : 11.55 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 2000 : 11.55 : ← 0.05
Rated speed rpm	: 500

rack travel mm Tolerance mm	: 8.30 : +- 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 1420 : 3.00 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 640 : 0.25 : ← 0.05
FUEL DELIVERY CHAI	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 700 : 230.0 : + 1.5 : + 5.0
LOW IDLE	700
Rated speed rpm Rack travel in mm	: 300 : 4.00
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 23.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000S. Spreed	: + 6.0
Tolerance cm3/1000 strokes	: 7.0

End of test specification sheet

: 11.0

Check tolerance cm3/1000s.

Pressure hPa :

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 402 646 700

Injection pump

Pump designation : PE6P120A320LS7917 EP type number : 0 412 626 972

Governor

Governer design. : RQV350...1050PA1366

Governer no. : 0 421 814 204

Cust. part No. : 0270744002

Customer—spec. information
Customer : MB-NFZ
Motor : 0M401 LA
Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : +- 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance $^{\circ}NW$: + 0.75

Start of delivery mark

Tolerance : \leftarrow 0.10

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

....

		1
Rack travel in mms	: 14.40	Rated speed rpm : 570
Tolerance mm	: ← 0.05	+ guide sleeve
		travel mm : 3.57
Del. quantity		Tolerance mm : + 0.25
cm3/1000 strokes	: 218.0	†
~		+ Rated speed rpm : 1204
Tolerance cm3/1000 strokes	: - 1.0	+ guide steeve + travet mm : 10.00
CMS/1000 Strokes	: +- 1.0	+ Tolerance mm : + 0.25
Check tolerance		T Total arice min . F 0.25
cm3/1000s.	: +- 4.0	Rated speed rpm : 1300
	,,,,	guide sleeve
Spreed		† travel mm : 11.50
·		† Tolerance mm : +- 0.50
Tolerance		+
cm3/1000 strokes	: 5.0	
	***************************************	+ GUIDE SLEEVE POSITION
Check tolerance	. 0.0	†
cm3/1000s.	: 9.0	t control lever
		position degree : - 1
		Rated speed rpm : 1160
Rated speed rpm	: 350	1 1100
		Rack travel in mm: 13.40
Rack travel in mm	: 5.80	+ Tolerance mm : +- 1.30
Tolerance mm	: +- 0.10	+
Del. quantity	40.0	
cm3/1000 strokes	: 19.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	70	+ Rated speed rpm : 1050
cm3/1000 strokes Check tolerance	: +- 3.0	+ Rated speed rpm : 1050 + Aneroid pressure
cm3/1000s.	: +- 6.0	+ hPa : 1000
Spreed	0.0	Del. quantity
Tolerance		- cm3/1000 strokes : 218.0
cm3/1000 strokes	: 6.0	+ Tolerance
Check tolerance		+ cm3/1000 strokes : ← 1.0
cm3/1000s.	: 10.0	+ Check tolerance
		+ cm3/1000s. : + 4.0
(D) OFTEND OF THE	ISSTAN SUMB	+ Spreed
(B) SETTING OF IN. WITH GOVERNOR	JECITON LOWL	+ Tolerance + cm3/1000 strokes : 5.0
WITH GOVERNOR		+ Check tolerance
		+ cm3/1000s. : 9.0
GUIDE SLEEVE TRAVE	EL	+
		+
Rated speed rpm	: 1106	+
guide sleeve		+ CONTROL LEVER
travel mm	: 8.02	†t1
Tolerance mm	: +- 0.15	control lever position degree : 119.0
Pated speed rom	: 350	<pre>position degree : 119.0 tolerance degree : + 4.0</pre>
Rated speed rpm guide sleeve	. 550	total difference active
travel mm	: 1.48	RATED SPEED
Tolerance mm	: ← 0.20	+ rack travel mm : 13.40
		Rated speed rpm : 1095
Rated speed rpm	: 900	Tolerance 1/min : +- 5
guide sleeve		†
travel mm	: 5.69	+ rack travel mm : 4.00
Tolerance mm	: - 0.25	+ Rated speed rpm : 1185

Tolerance 1/min : + 15 rack travel mm : 0.75 Tolerance mm : + 0.75	+ Pressure hPa : 650 + rack travel mm : 3.35 + Tolerance mm : + 0.20
Rated speed rpm : 1300	Start interlock Rated speed rpm : > 100
LOW IDLE	Rated speed rpm : < 270
	+ Check + speed 1/min : > 80
control lever position degree : 66.0 tolerance degree : + 4.0	Check speed 1/min : < 290
Setting point w/out bumper spring	FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 250	Aneroid pressure
CRT mm min. :> 7.90 Testing:	hPa : 1000 + Rated speed rpm : 700 + Del. quantity
Rated speed rpm : 350	cm3/1000 strokes : 230.0
rack travel mm : 5.80 Tolerance mm : +- 0.10	cm3/1000 strokes : +- 2.0 Check tolerance
Rated speed rpm : 390	- cm3/1000s. : + 5.0 - Spreed - Tolerance
TORQUE CONTROL	+ cm3/1000 strokes : 8.0 + Check tolerance
Rated speed rpm : 1050 rack travel mm : 14.40 Tolerance mm : + 0.05	cm3/1000s. : 12.0
Rated speed rpm : 700 rack travel mm : 14.80	Aneroid pressure hPa : - Rated speed rpm : 500
Tolerance mm : + 0.05	Del. quantity cm3/1000 strokes : 135.0
Rated speed rpm : 970 rack travel mm : 14.60 Tolerance mm : + 0.05	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
ANEROID/ALTITUDE COMPENSATOR TEST	Tolerance : 8.0
SETTING	+ Check tolerance - cm3/1000s. : 12.0
Rated speed rpm : 500 Pressure hPa : -	REDUCED QUANTITY
MEASUREMENT	+ Aneroid pressure + hPa : 1000 + Rated speed rpm : 1050
Pressure hPa : 300 rack travel mm : 0.75	Del. quantity cm3/1000 strokes : 163.0
Tolerance mm : + 0.05	+ Tolerance + cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000S. : **←** 5.0

STARTING FUEL DELIVERY

100 Rated speed rpm :

Del. quantity

230.0 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s.: +- 19.0

LOW IDLE

350 Rated speed rpm :

Rack travel in mm : 5.80 Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

: +cm3/1000S.6.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

10.0 cm3/1000S.

End of test specification sheet

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Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 10.11.97 : ISO 4113

Combination No. : 0 402 646 785

Injection pump

Pump designation : PE6P120A320LS7869 EP type number : 0 412 626 887

Governor

Governer design. : RQV300...1050PA1078K

Governer no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information

Customer : LIEBHERR

Motor

: D 9406 TI

Power KW

: 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

2.0

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 165 Tolerance l/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter :

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 3.65

Tolerance mm : +- 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50

Tolerance m_{i} : \leftarrow 1.50

Firing order : 1-6-3-5-2-

: 4

Phasing : 0-60-120-180-240

: -300

: + - 0.50Tolerance

Check

tolerance *NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes :

290.0

Tolerance

cm3/1000 strokes : +- 1.0

		↓
Check tolerance cm3/1000s.	: +- 4.0	Rated speed rpm : 450
		+ guide sleeve
Spreed		travel mm : 3.66
Talanana		+ Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes	: 5.0	Rated speed rpm : 1320
CHIDY 1000 STIOKES	. 5.0	guide steeve
Check tolerance		+ travel mm : 13.50
cm3/1000s.	: 9.0	+ Tolerance mm : +- 0.50
		+
		GUIDE SLEEVE POSITION
Rated speed rpm	: 300	T GOIDE SEEEVE FOSTITON
Marca opeca i piii	. 000	+
Rack travel in mm		† control lever
Tolerance mm	: +- 0.10	position degree : - 1
Del. quantity cm3/1000 strokes	: 25.0	Rated speed rpm : 1185
Tolerance	: 23.0	Rack travel in mm: 10.80
cm3/1000 strokes	: ← 3.0	Tolerance mm : +- 1.30
Check tolerance		+
cm3/1000s.	: +- 6.0	
Spreed		+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes	: 6.0	Rated speed rpm : 1050
Check tolerance	. 0.0	+ Aneroid pressure
cm3/1000s.	: 10.0	+ hPa : 1550
		+ Del. quantity
(-)		+ cm3/1000 strokes : 290.0
(B) SETTING OF IN	JECTION PUMP	+ Tolerance + cm3/1000 strokes : +- 1.0
WITH GOVERNOR		+ Check tolerance
		+ cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAV	EL	+ Spreed
		+ Tolerance
Rated speed rpm	: 1117	+ cm3/1000 strokes : 5.0
guide sleeve	• 10 38	+ Check tolerance
travel mm	: 10.38 : + 0.25	
		+ Check tolerance
travel mm Tolerance mm Rated speed rpm		Check tolerance cm3/1000s. : 9.0
travel mm Tolerance mm Rated speed rpm guide sleeve	: ← 0.25 : 300	+ Check tolerance
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: ← 0.25 : 300 : 1.69	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER
travel mm Tolerance mm Rated speed rpm guide sleeve	: ← 0.25 : 300	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: ← 0.25 : 300 : 1.69	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: ← 0.25 : 300 : 1.69 : ← 0.25 : 746	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : 4.0
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: ← 0.25 : 300 : 1.69 : ← 0.25 : 746	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20 : + 0.25	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm Rated speed rpm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20 : + 0.25 : 353 : 2.45	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve	: ← 0.25 : 300 : 1.69 : ← 0.25 : 746 : 6.20 : ← 0.25 : 353	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm	: ← 0.25 : 300 : 1.69 : ← 0.25 : 746 : 6.20 : ← 0.25 : 353 : 2.45 : ← 0.25	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20 : + 0.25 : 353 : 2.45	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Tolerance 1/min : + 15
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Tolerance mm	: ← 0.25 : 300 : 1.69 : ← 0.25 : 746 : 6.20 : ← 0.25 : 353 : 2.45 : ← 0.25	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : + 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200
travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	: + 0.25 : 300 : 1.69 : + 0.25 : 746 : 6.20 : + 0.25 : 353 : 2.45 : + 0.25 : 403	Check tolerance cm3/1000s. : 9.0 CONTROL LEVER control lever position degree : 121.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 11.30 Rated speed rpm : 1110 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1200 Tolerance 1/min : +- 15 rack travel mm : 0.50

Tolerance 1/min	: ← 15	Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 9.10 Tolerance mm : +- 0.20
LOW IDLE	<u> </u>	MEASUREMENT
	+	Rated speed rpm : 1050
control lever		
position degree	: /0.0	Pressure hPa : 670
tolerance degree	: - 4.0	rack travel mm : 11.00 Tolerance mm : +- 0.05
Setting point w/o	out bumper spring	Total and the time
	+	Pressure hPa : 600
Rated speed rpm	: 200	rack travel mm : 10.50
CRT mm min.	: > 6.50	Tolerance mm : +- 0.20
	+	
Testing:	‡	Start interlock
Rated speed rpm	: 300	Rated speed rpm :> 100
rack travel mm	: 5.00 +	Rated speed rpm : < 240
Tolerance mm	: + 0.10 +	Ot 1
Dotod cood	. 350	Check speed 1/min :> 80
Rated speed rpm	: 350	Speed //min : > 60 Check
		speed 1/min : < 250
TORQUE CONTROL	1	.,
Rated speed rpm	: 1050	
rack travel mm		FUEL DELIVERY CHARACTERISTICS
Tolerance mm	: ← 0.05	
Rated speed rom	: 500	Aneroid pressure
Rated speed rpm rack travel mm	: 10.10	hPa : 1550
Tolerance mm	: + 0.10	Rated speed rpm : 500
	+	Del. quantity
Rated speed rpm	: 8UU +	cm3/1000 strokes : 288.0
rack travel mm Tolerance mm		Tolerance cm3/1000 strokes : ← 3.0
	I	Check tolerance
Rated speed rpm	: 950	cm3/1000s. : + 6.0
rack travel mm	: 12.25	
Tolerance mm	: + 0.10	
Data di serie d		Aneroid pressure
Rated speed rpm		hPa : 1550 Rated speed rpm : 800
rack travel mm Tolerance mm	: 10.20 + : + 0.10 +	Del. quantity
TOTEL GIVE IIM	1	cm3/1000 strokes : 302.0
		Tolerance
ANEROID/ALTITUDE	+	cm3/1000 strokes : +- 3.0
COMPENSATOR TEST	†	Check tolerance
	†	cm3/1000s. : +- 6.0
SETTING	Į	The state of the s
	1	Aneroid pressure
Rated speed rpm		hPa : -
5	: 1550 	Rated speed rpm : 550
	10.70	.
Pressure hPa rack travel mm Tolerance mm		Del. quantity cm3/1000 strokes : 245.0

Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance 8.0 cm3/1000 strokes : Check tolerance cm3/1000s.12.0 STARTING FUEL DELIVERY Set starting CRT at K-cam. Rated speed rpm : 100 rack travel mm 10.00 Tolerance mm : **←** 0.30 Del. quantity cm3/1000 strokes : 200.0 Tolerance cm3/1000 strokes : \leftarrow 15.0 Check tolerance : **←** 20.0 cm3/1000s.LOW IDLE Rated speed rpm : 300 Rack travel in mm : 5.00 Tolerance mm : **←** 0.10 Del. quantity 25.0 cm3/1000 strokes : Tolerance 3.0 cm3/1000 strokes : +-Check tolerance cm3/1000s.6.0 : +-Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance 10.0 cm3/1000S. End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 10.11.97 **Edition** : ISO 4113 Test oil

Combination No. : 0 402 646 785A

Injection pump

Pump designation: PE6P120A320LS7869 EP type number : 0 412 626 887

Governor

Governer design. : RQV300...1050PA1078K

Governer no. : 0 421 815 359

Cust. part No. : 9275445

Customer—spec. information Customer : LIEBHERR Motor : D 9406 TI : 300.0 Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

40 temp. °C Tolerance °C 2.0

Overflow valve : 1 417 413 047

2.0 Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity

min. l/h : 165
Tolerance l/h : +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.65 : +- 0.05 Tolerance mm Check

tolerance mm : \leftarrow 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-6-3-5-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ← 0.50

Check

tolerance $^{\circ}NW$: +- 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.30 Tolerance mm: +- 0.05

Del. quantity

cm3/1000 strokes : 290.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s.	: ← 4.0	Rated speed rpm : 450 guide sleeve
Spreed		travel mm : 3.66 Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes :	: 5.0	Rated speed rpm : 1320 guide sleeve
Check tolerance cm3/1000s.	9.0	travel mm : 13.50 Tolerance mm : + 0.50
Rated speed rpm :	: 300	GUIDE SLEEVE POSITION
Del. quantity	: +- 0.10	control lever position degree : - 1 Rated speed rpm : 1185
cm3/1000 strokes : Tolerance cm3/1000 strokes : Check tolerance	+	Rack travel in mm : 11.00 Tolerance mm : +- 1.30
_	: + 6.0 +	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : Check tolerance	10.0	Rated speed rpm : 1050 Aneroid pressure hPa : 1550
(B) SETTING OF INJE	+	Del. quantity cm3/1000 strokes : 290.0 Tolerance
WITH GOVERNOR	+	cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
GUIDE SLEEVE TRAVEL	-	Spreed Tolerance
Rated speed rpm : guide sleeve	1117	cm3/1000 strokes : 5.0 Check tolerance
travel mm : Tolerance mm :	10.38 + 0.25	cm3/1000s. : 9.0
Rated speed rpm : guide sleeve travel mm :	1.69	CONTROL LEVER
	746	control lever position degree : 121.0 tolerance degree : + 4.0
guide sleeve travel mm :	6.20 + 0.25	RATED SPEED rack travel mm : 11.00
Rated speed rpm : guide sleeve	353	Rated speed rpm : 1105 Tolerance 1/min : + 5
travel mm :	2.45 +- 0.25	rack travel mm : 4.00 Rated speed rpm : 1200 Tolerance 1/min : + 15
Rated speed rpm : guide sleeve travel mm :	3.18	rack travel mm : 0.50 Tolerance mm : + 0.50
Tolerance mm :	+ 0.25	Rated speed rpm : 1300

Tolerance 1/min	: ← 15	Rated speed rpm : 550 Pressure hPa : - rack travel mm : 9.10 Tolerance mm : + 0.20	
LOW IDLE	Ţ	MEASUREMENT	
control lever position degree	: 70.0	Rated speed rpm : 1050 Pressure hPa : 670	
tolerance degree	: + 4.0	rack travel mm : 11.00 Tolerance mm : +- 0.05	
Setting point w/ou	ut bumper spring +	Pressure hPa : 600	
Rated speed rpm	: 200	rack travel mm : 10.50 Tolerance mm : +- 0.20	
CRT mm min.	: > 6.50		
Testing:	‡	Start interlock	
Rated speed rpm rack travel mm Tolerance mm	: 5.00 +	Rated speed rpm : > 100 Rated speed rpm : < 240	
Rated speed rpm	: 350	Check speed 1/min :> 80 Check	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1050 : 12.30 : +- 0.05	speed 1/min : < 250 FUEL DELIVERY CHARACTERISTICS	
Rated speed rpm rack travel mm Tolerance mm	: 10.10	Aneroid pressure hPa : 1550 Rated speed rpm : 500	
Rated speed rpm rack travel mm Tolerance mm		Del. quantity cm3/1000 strokes : 288.0 Tolerance cm3/1000 strokes : + 3.0	
Rated speed rpm rack travel mm Tolerance mm	: 950 + + + + + + + + + + + + + + + + + + +	Check tolerance cm3/1000s. : +- 6.0	
Rated speed rpm rack travel mm Tolerance mm	: 600 : 10.20 : + 0.10	Aneroid pressure hPa : 1550 Rated speed rpm : 800 Del. quantity	
		cm3/1000 strokes : 302.0 Tolerance	
ANEROID/ALTITUDE COMPENSATOR TEST	† † †	cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0	
SETTING	‡		
Rated speed rpm Pressure hPa	: 1050 : 1550	Aneroid pressure hPa : - Rated speed rpm : 550	
rack travel mm Tolerance mm	: 12.30 : + 0.05	Del. quantity cm3/1000 strokes : 245.0	

Tolerance cm3/1000 strokes : \leftarrow 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance 8.0 cm3/1000 strokes : Check tolerance cm3/1000s. 12.0 STARTING FUEL DELIVERY Set starting CRT at K-cam. Rated speed rpm : 100 rack travel mm 10.00 : + 0.20Tolerance mm Del. quantity cm3/1000 strokes : 200.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000s. : +- 20.0 LOW IDLE Rated speed rpm : 300 5.00 Rack travel in mm : : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 25.0 Tolerance 3.0 cm3/1000 strokes : +-Check tolerance 6.0 cm3/1000S. : +-Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance 10.0 cm3/1000S. End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 17.11.97 : ISO 4113

Combination No. : 0 402 648 702

Injection pump

Pump designation : PE8P120A320LS7915

EP type number : 0 412 628 929

Governor

Governer design. : RQV250...1150PA1346

Governer no. : 0 421 814 193

Cust. part No. :

Customer-spec. information Customer : DHI

: DV15T

Motor Power KW

: 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

40

Tolerance °C

: +-2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 125
Tolerance l/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : \leftarrow 1.0

Prestroke mm : 5.20

Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 16.00

Tolerance mm : +- 1.50

Firing order : 8-7-2-6-3 : - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

: **←** 0.50 Tolerance

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

: +- 0.75 tolerance °NW

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 13.80

Tolerance mm : + 0.05

	+ guide sleeve
Del. quantity	+ travel mm : 4.65
cm3/1000 strokes : 222.0	+ Tolerance mm : +- 0.25
Cho/ rood strokes : 222.0	Toterance IIIII . += 0.23
Tolerance	+ Rated speed rpm : 1390
cm3/1000 strokes : + 1.0	+ guide sleeve
	† travel mm : 11.50
Check tolerance	+ Tolerance mm : + 0.50
cm3/1000s. : +- 4.0	10 (c) di loc lini
CMD/ (0003 +- 4.0	T
	CUTATE OF ECOLO DOCUTATION
Spreed	+ GUIDE SLEEVE POSITION
	†
Tolerance	+
cm3/1000 strokes : 7.0	+ control lever
	→ position degree : - 1
Check tolerance	+ Rated speed rpm : 1227
	Nated Speed / pill . TEET
cm3/1000s. : 10.0	12.00
	+ Rack travel in mm : 12.80
	+ Tolerance mm : +- 1.30
	+
Rated speed rpm : 250	+
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 5.60	
	Rated speed rpm : 1150
Del. quantity	+ Aneroid pressure
cm3/1000 strokes : 20.0	+ hPa : -
Tolerance	+ Del. quantity
cm3/1000 strokes : $+$ 3.0	+ cm3/1000 strokes : 222.0
Check tolerance	Tolerance
	+ cm3/1000 strokes : +- 1.0
Spreed	+ Check tolerance
Tolerance	+ cm3/1000s. : +- 4.0
cm3/1000 strokes : 5.0	+ Spreed
Check tolerance	∔ Tolerance
cm3/1000s. : 8.0	+ cm3/1000 strokes : 7.0
CIID/ (0000 0.0	Check tolerance
4-1	+ cm3/1000s. : 10.0
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	+
GUIDE SLEEVE TRAVEL	4
SOUND OFFICE (WASE)	control lever
Dated award war a 1207	· ·
Rated speed rpm : 1207	+ position degree : 58.0
guide sleeve	tolerance degree : +- 4.0
travel mm : 8.92	+
Tolerance mm : + 0.15	∔ control lever
	position degree : 122.0
Rated speed rpm : 250	tolerance degree : + 4.0
The second secon	T coterance degree . 4.0
guide sleeve	04750 05750
travel mm : 1.31	+ RATED SPEED
Tolerance mm : +- 0.20	+ rack travel mm : 12.80
	+ Rated speed rpm : 1195
Rated speed rpm : 1185	+ Tolerance 1/min : +- 5
· · · · · · · · · · · · · · · · · · ·	1 /occiding i/milli
guide sleeve	T most travel / 00
travel mm : 8.60	+ rack travel mm : 4.00
Tolerance mm : +- 0.25	+ Rated speed rpm : 1295
	+ Tolerance 1/min : +- 15
Rated speed rpm : 640	+
The state of the s	rack travel mm : 0.50
	1 . dok of droc (mil

Tolerance mm Rated speed rpm	: ← 0.50 : 1400	† †
LOW IDLE		T
control lever position degree tolerance degree	: 85.0 : +- 4.0	+
control lever position degree tolerance degree	: 21.0 : + 4.0	† † †
Setting point w/o	out bumper spring	Ŧ
Rated speed rpm	: 150	Ŧ
CRT mm min.	: > 7.30	Ŧ
Testing:		7
Rated speed rpm rack travel mm Tolerance mm		† † †
Rated speed rpm	: 300	+
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 13.80 : ← 0.05	† † † †
Rated speed rpm rack travel mm Tolerance mm	: 650 : 13.80 : +- 0.10	† † † †
ANEROID/ALTITUDE COMPENSATOR TEST		† † †
SETTING		+
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 13.80 : ← 0.05	† † † †
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 8.10 : + 0.20	† † † †
MEASUREMENT		‡

Rated speed rpm Pressure hPa rack travel mm Tolerance mm Pressure hPa rack travel mm Tolerance mm	: 500 : 350 : 10.00 : +- 0.20 : 735 : 12.10 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 165 : < 190
Check speed 1/min Check	: > 155
speed 1/min	: < 210
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity	: - : 650
cm3/1000 strokes	: 241.0
Tolerance cm3/1000 strokes Check tolerance	: - 3.0
cm3/1000s.	: +- 6.0
Aneroid pressure hPa Rated speed rpm	: - : 500
Del. quantity cm3/1000 strokes	: 123.0
Tolerance cm3/1000 strokes Check tolerance	: 1.0
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm Del. quantity cm3/1000 strokes	: 100 : 193.0
Tolerance cm3/1000 strokes Check tolerance	: + 20.0
cm3/1000s.	: ← 24.0

LOW IDLE

Rated speed rpm	:	250	
Rack travel in mm Tolerance mm Del. quantity	: +-	5.60 0.10	
cm3/1000 strokes	:	20.0	
Tolerance cm3/1000 strokes	: +-	3.0	
Check tolerance cm3/1000s.	: +-	6.0	
Spreed Tolerance			
cm3/1000 strokes	:	5.0	
Check tolerance cm3/1000s.	:	8.0	

End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 13.10.97 Test oil : ISO 4113

Combination No. : 0 402 648 919

Injection pump

Pump designation : PE8P12OA32OLS7843 EP type number : 0 412 628 859

Governor

Governer design. : RQV350...1050PA842

: -8

: 0 421 813 952 Governer no.

Cust. part No. : 022 074 0102

Customer-spec. information Customer : MB-NFZ : 0M442 LA Motor Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. L/h : 110 Tolerance t/h : +- 10.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0 x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

5.25 Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

: 0-45-90-135-180 Phasing

: -225-270-315 : +- 0.50 Tolerance

Check

: +- 0.75 tolerance °NW

Start of delivery mark

: +- 0.10 Tolerance

Check

: +- 0.75 tolerance °NW

Barrel no. : 8

BASIC SETTING

600 Rated speed rpm :

Rack travel in mo Tolerance mon	n: 14.60 : + 0.10	Rated speed rpm : 1100 guide sleeve travel mm : 8.10
Del. quantity cm3/1000 strokes	: 230.0	Tolerance mm : +- 0.30
Tolerance cm3/1000 strokes	: + 1.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s.	: + 4.0	control lever position degree : - 1 Rated speed rpm : 1125
Spreed	+	Rack travel in mm: 17.25
Tolerance cm3/1000 strokes	: 5.0	Toleranse mm : + 0.75
Check tolerance cm3/1000s.	: 9.0	FULL LOAD DELIVERY AT FULL LOAD STOP
		Rated speed rpm : 600 Aneroid pressure
Rated speed rpm	: 350	hPa : 1000 Del. quantity
Rack travel in mm	+	cm3/1000 strokes : 230.0 Tolerance
Tolerance mm		cm3/1000 strokes : +- 1.0
Del. quantity	+	Check tolerance
cm3/1000 strokes Tolerance	: 19.0	cm3/1000s. : +- 4.0 Spreed
cm3/1000 strokes	: ← 3.0 [‡]	Tolerance
Check tolerance	+	cm3/1000 strokes : 5.0
cm3/1000s.	: + 6.0 +	Check tolerance
Spreed	†	cm3/1000s. : 9.0
Tolerance cm3/1000 strokes	· 6.0	
Check tolerance	+	
cm3/1000s.	: 10.0	CONTROL LEVER
	†	control lever
(B) SETTING OF IN	LIECTION PHMP	position degree : 117.0
WITH GOVERNOR	+	tolerance degree : +- 4.0
	+	
CHINE OF FUE TOWN	+	RATED SPEED rack travel mm : 13.50
GUIDE SLEEVE TRAV	t I	rack travel mm : 13.50 Rated speed rpm : 1095
Rated speed rpm guide sleeve	: 1270	Tolerance 1/min : + 5
travel mm	: 11.50	rack travel mm : 4.00
Tolerance mm	: +- 0.50	Rated speed rpm : 1175
Dated speed nom	: 350	Tolerance 1/min : +- 15
Rated speed rpm guide sleeve	: 350	rack travel mm : 0.50
travel mm	: 1.00	Tolerance mm : +- 0.50
Tolerance mm	: ← 0.20	Rated speed rpm : 1300
Rated speed rpm guide sleeve	: 510	
travel mm	: 3.85	
Tolerance mm	: + 0.25 +	LOW IDLE

control lever 65.0 position degree tolerance degree : +- 4.0 Setting point w/out bumper spring 100 Rated speed rpm 7.40 CRT mm min. : > Testing: 350 Rated speed rpm 5.80 rack travel mm : **←** 0.30 Tolerance mm : 450 Rated speed rpm TORQUE CONTROL 600 Rated speed rpm 14.60 rack travel mm : : + 0.10Tolerance mm 1050 Rated speed rpm rack travel mm 14.60 : + 0.10Tolerance mm 800 Rated speed rpm 14.90 rack travel mm : + 0.10Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING 600 Rated speed rpm 1250 Pressure hPa 0.20 rack travel mm : + 0.10Tolerance mm 2-stage LDA setting 600 Rated speed rpm 1000 Pressure hPa : **MEASUREMENT** 600 Rated speed rpm 400 Pressure hPa -3.50rack travel mm : + - 0.10Tolerance mm 550 Pressure hPa

rack travel mm Tolerance mm	: -2.20 : +- 0.10
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 270
Check speed 1/min Check	: > 80
speed 1/min	: < 290
FUEL DELIVERY CHAR	ACTERISTICS
Aneroid pressure hPa	: 1500
Rated speed rpm Del. quantity	: 1050
cm3/1000 strokes Tolerance	: 230.5
cm3/1000 strokes Check tolerance	: + 1.5
cm3/1000s. Spreed	: +- 4.5
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 238.0 : +- 2.0
cm3/1000s. Spreed Tolerance	: +- 5.0
cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: - : 500
Tolerance	: 137.0

: +- 4.0

cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes :

8.0

Check tolerance

cm3/1000s.

12.0

100

STARTING FUEL DELIVERY

Rated speed rpm :

Del. quantity

cm3/1000 strokes : 260.0

Tolerance

cm3/1000 strokes : \leftarrow 15.0

Check tolerance

cm3/1000s. : +- 20.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.80 Tolerance mm : + 0.30

Del. quantity

19.0

cm3/1000 strokes :

...-

Tolerance

cm3/1000 strokes : \leftarrow 3.0

Check tolerance

cm3/1000s. : +- 6.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 10.0

End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 16.07.97 Test oil : ISO 4113

Combination No. : 0 402 648 920

Injection pump

Pump designation : PE8P120A320LS7844 EP type number : 0 412 628 860

Governor

Governer design. : RQV350...1050PA870

: -16

Governer no. : 0 421 813 953

Cust. part No. : 022 074 0202

Customer—spec. information Customer : MB-NFZ Motor : 0M442 LA Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 2.5

x length mm : 1060

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.05 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : \leftarrow 0.50

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Start of delivery mark

Barrel no. : 8

CRT ZERO POSITION

Rack travel in mm : 14.30Tolerance mm : +- 0.10

BASIC SETTING

Rated speed rpm : 600

		† Tolerance mm	: +- 0.25
Rack travel in mm	n: 14.30 :+- 0.10	Rated speed rpm guide sleeve	: 900
		+ travel mm	: 5.65
Del. quantity cm3/1000 strokes	: 258.0	Tolerance mm	: ← 0.25
T.1		+ Rated speed rpm	: 1204
Tolerance cm3/1000 strokes	: ← 1.0	<pre>guide sleeve travel mm Tolerance mm</pre>	: 10.05 : + 0.25
Check tolerance cm3/1000s.	: +- 4.0	GUIDE SLEEVE POSI	
Spreed		T GOIDE SELEVE FOST	11014
Tolerance cm3/1000 strokes	: 5.0	control lever position degree Rated speed rpm	
Check tolerance cm3/1000s.	: 9.0	+ Rack travel in mm	17.25 : + 0.75
		+ Tolerance mm	: +- 0.75
Rated speed rpm	: 350	FULL LOAD DELIVER	RY AT FULL LOAD STOP
Rack travel in mm	i: 5.00	Rated speed rpm	: 600
Tolerance mm	: + 0.10	+ Aneroid pressure + hPa	: 1100
Del. quantity cm3/1000 strokes	: 19.0	Del. quantity	: 1100
Tolerance		+ cm3/1000 strokes	: 258.0
cm3/1000 strokes	: 	+ Tolerance	
Check tolerance		+ cm3/1000 strokes	: + 1.0
cm3/1000s. Spreed	: +- 6.0	+ Check tolerance + cm3/1000s.	: +- 4.0
Tolerance		Spreed	• • •••
cm3/1000 strokes	: 6.0	+ Tolerance	
Check tolerance	40.0	+ cm3/1000 strokes	: 5.0
cm3/1000s.	: 10.0	+ Check tolerance + cm3/1000s.	: 9.0
		+ (1115) 10003.	. 7.0
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP	<u> </u>	<u> </u>
WITH GOVERNOR		CONTROL LEVER	
GUIDE SLEEVE TRAV	EL	control lever position degree	. 110.0
Rated speed rpm guide sleeve	: 1108	tolerance degree	
travel mm	: 8.05	+ RATED SPEED	
Tolerance mm	: - 0.25	+ rack travel mm	
Rated speed rpm guide sleeve	: 350	Rated speed rpm Tolerance 1/min	
travel mm	: 1.55	rack travel mm	: 4.00
Tolerance mm	: + 0.25	Rated speed rpm	
Rated speed rpm	: 570	+ Tolerance 1/min	: +- 15
guide sleeve		rack travel mm	: 0.50
travel mm	: 3.55	+ Tolerance mm	: ← 0.50

Rated speed rpm	: 1300	Pressure hPa rack travel mm Tolerance mm	: 0.45
LOW IDLE		Start interlock	
control lever position degree tolerance degree	: 67.0 : +- 4.0	Rated speed rpm Rated speed rpm	
Setting point w/	out bumper spring	+ Check + speed 1/min	: > 80
Rated speed rpm	: 250	+ Check + speed 1/min	: < 290
CRT mm min.	: > 6.60	FUEL DELIVERY CH	APACTERISTICS
Testing:		1000 00010000	
Rated speed rpm rack travel mm Tolerance mm Rated speed rpm	: 5.00 : + 0.10	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1800 : 1050 : 272.0
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 14.30	cm3/1000 strokes Check tolerance cm3/1000s.	: +- 4.5
Rated speed rpm rack travel mm Tolerance mm	: 15.30	+ Aneroid pressure + hPa + Rated speed rpm + Del. quantity + cm3/1000 strokes	: 1800 : 800
Rated speed rpm rack travel mm Tolerance mm	: 15.30	Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
ANEROID/ALTITUDE COMPENSATOR TEST		Aneroid pressure hPa Rated speed rpm Del. quantity	: - : 500
2-stage LDA sett	ing	cm3/1000 strokes Tolerance	: 140.0
Rated speed rpm Pressure hPa	: 600 : 1100	cm3/1000 strokes Check tolerance cm3/1000s.	: +- 1.0 : +- 4.0
MEASUREMENT		T (IID) 10003.	4.0
Pressure hPa rack travel mm Tolerance mm	: 290 : -5.50 : + 0.05	REDUCED QUANTITY Aneroid pressure	: 1800
Pressure hPa rack travel mm Tolerance mm	: 780 : −1.30 : ← 0.10	+ hPa + Rated speed rpm + Del. quantity + cm3/1000 strokes	: 1050
		•	

Tolerance cm3/1000 strokes : +- 1.5Check tolerance cm3/1000S. : +-4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 270.0 Tolerance cm3/1000 strokes : \leftarrow 10.0 Check tolerance cm3/1000s. : **←** 14.0 LOW IDLE 350 Rated speed rpm : 5.00 Rack travel in mm: : **←** 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 19.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance 6.0 cm3/1000s.: +-Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s.10.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 17.11.97 Edition Test oil : ISO 4113

Combination No. : 0 402 676 840

Injection pump

Pump designation : PE6P120A320LS7918 EP type number : 0 412 626 971

Governor

Governer design. : RSV550...1050P0A685

Governer no. : 0 421 833 608

Cust. part No. : 0270744202

Customer-spec. information Customer : M8-NFZ : OM 441 LA : 239.0 Motor Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 150
Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : \leftarrow 0.50

Firing order : 6-3-5-2-4-

Phasing : 0-60-120-180-240

: -300

: **←** 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm: 14.50 Tolerance mm : \leftarrow 0.05

1	Aneroid pressure
Del. quantity	hPa : -
cm3/1000 strokes : 227.0	Del. quantity
Talanana	cm3/1000 strokes : 227.0
Tolerance + 1.0 +	Tolerance cm3/1000 strokes : +- 1.0
1.0	Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
cm3/1000s. : +- 4.0 +	Spreed
Spreed	Tolerance cm3/1000 strokes : 5.0
opi ced	Check tolerance
Tolerance	cm3/1000s. : 9.0
cm3/1000 strokes : 5.0 +	
Check tolerance	
cm3/1900s. : 9.0	CONTROL LEVER
1	control lever position degree : 88.0
Rated speed rpm : 550	tolerance degree : +- 4.0
+	
Rack travel in mm: 4.30	ACCEMPLY COVERNOR OFFERING
Tolerance mm : +- 0.10 + Del. quantity +-	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 19.0	Rated speed rpm : 1070
Tolerance	rack travel mm : 13.50
cm3/1000 strokes : + 3.0 +	Data di anno di mana di 4422
Check tolerance + 6.0 +	Rated speed rpm : 1122 Tolerance 1/min : +- 4
Spreed +	rack travel mm : 4.00
Tolerance +	· · · · · · · · · · · · · · · · · · ·
cm3/1000 strokes : 6.0	rack travel mm : 0.85
Check tolerance + cm3/1000s. : 10.0 +	Tolerance mm : +- 0.55 Rated speed rpm : 1300
	Nated Speed Poil . 1550
+	
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1071 rack travel mm : 13.50
WITH GOVERNOR	rack travet min . 13.30
+	Rated speed rpm : 1123
	Tolerance 1/min : + 4
GUIDE SLEEVE POSITION	rack travel mm : 4.00
I	rack travel mm : 0.85
control lever	Tolerance mm : +- 0.55
position degree : - 3	Rated speed rpm : 1300
Rated speed rpm : 800	
Rack travel in mm: 0.50	Rated speed rpm : 1072
Tolerance mm : + 0.20	rack travel mm : 13.50
†	Dated around prom : 112/
governor spring + pre-tension +	Rated speed rpm : 1124 Tolerance 1/min : +- 4
click setting x : 2.00	rack travel mm : 4.00
+	
FULL LOAD DELTUEDY AT FULL LOAD CTOD	rack travel mm : 0.85 Tolerance mm : +- 0.55
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance mm : +- 0.55 Rated speed rpm : 1300
Rated speed rpm : 1030	
• • • • • • • • • • • • • • • • • • • •	

Rated speed rpm rack travel mm	: 1073 : 13.50
Rated speed rpm Tolerance ¹ /min rack travel mm	: 1125 : +- 4 : 4.00
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : + 0.55 : 1300
Rated speed rpm rack travel mm	: 1074 : 13.50
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300
rack travel mm	: 13.50
rack travel mm	: 4.00
rack travel mm Tolerance mm	: 0.85 : +- 0.55
LOW IDLE	
control lever position degree tolerance degree	
Setting point w/o	out bumper spring
Rated speed rpm	: 450
CRT mm min.	: > 8.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 550 : 4.30 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 565 : + 30
SET IDLE AUXILIAR	Y SPRING

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1030 : 14.50 : +- 0.05
Rated speed rpm	: 960
rack travel mm	: 14.70
Tolerance mm	: +- 0.05
Rated speed rpm	: 600
rack travel mm	: 15.30
Tolerance mm	: + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 500
Pressure hPa	: 1000
rack travel mm	: 15.20
Tolerance mm	: ← 0.10
Rated speed rpm	: 500
Pressure hPa	: -
rack travel mm	: 10.95
Tolerance mm	: +- 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 650
rack travel mm	: 13.85
Tolerance mm	: +- 0.20
Pressure hPa	: 450
rack travel mm	: 11.75
Tolerance mm	: + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	_
Rated speed rpm	:	600
Del. quantity		
cm3/1000 strokes	:	260.0
Tolerance		
cm3/1000 strokes	: +	3.0
Check tolerance		
cm3/1000s.	: +	- 6.0
Spreed		

rack travel mm : 2.00

Tolerance		0.0	
cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	
Aneroid pressure			•
hPa Rated speed rpm	:	500	
Del. quantity cm3/1000 strokes Tolerance	:	159.0	
cm3/1000 strokes Check tolerance	: +-	1.0	
cm3/1000s. Spreed	: +-	4.0	
Tolerance cm3/1000 strokes	:	5.0	
Check tolerance cm3/1000s.	:	9.0	
STARTING FUEL DELI	IVERY		
Rated speed rpm Del. quantity	:	100	
cm3/1000 strokes	:	250.0	
Tolerance cm3/1000 strokes	: +-	15.0	
Check tolerance cm3/1000S.	: +-	19.0	
LOW IDLE			·
Rated speed rpm	:	550	
Rack travel in mm	:	4.30	
Tolerance mm Del. quantity	: +-	0.10	
cm3/1000 strokes Tolerance	:	19.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s. Spreed	: +-	6.0	
Tolerance cm3/1000 strokes	:	6.0	
Check tolerance cm3/1000S.	:	10.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 03.11.97 : ISO 4113

Combination No. : 0 402 738 800

Injection pump

Pump designation : PE8P130A720/3LS7443

EP type number : 0 412 738 801

Governor

Governer design. : RQV350...900PA1359

Governer no. : 0 421 814 202

Cust. part No. :

Customer-spec. information

Customer : FINCANTIERI

Motor : V1708T2-SPE

Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40

Tolerance °C 2.0

: 1 417 413 047 Overflow valve

2.0 Inlet press. bar :

Overflow quantity

: 160 min. L/h

Tolerance l/h: \leftarrow 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar

Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

3.55 Prestroke mm

Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50

Tolerance mm : \leftarrow 1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225

: -270-315 Tolerance : + - 0.50

Check

tolerance °NW : + 0.75

BASIC SETTING

900 Rated speed rpm :

Rack travel in mm : 14.80 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 420.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: +cm3/1000s. 5.0

Spreed -	Tolerance mm : +- 1.30
Tolerance - cm3/1000 strokes : 6.0 -	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900
Check tolerance cm3/1000s. : 10.5	Rated speed rpm : 900 Aneroid pressure hPa : 900 Del. quantity cm3/1000 strokes : 420.0
Rated speed rpm : 350	Tolerance : 420.0 cm3/1000 strokes : +- 1.0 Check tolerance
Rack travel in mm: 4.20 - Tolerance mm: + 0.10 - Del. quantity	cm3/1000s. : + 5.0 Spreed Tolerance
<pre>cm3/1000 strokes : 25.0 - Tolerance</pre>	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.5
Check tolerance - cm3/1000s. : + 7.0 - Spreed -	
Tolerance - cm3/1000 strokes : 9.5 - Check tolerance -	CONTROL LEVER control lever
cm3/1000s. : 13.0	position degree : 115.0 tolerance degree : + 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	RATED SPEED - rack travel mm : 13.80 - Rated speed rpm : 945 - Tolerance 1/min : +- 5
GUIDE SLEEVE TRAVEL	_
Rated speed rpm : 958 - guide sleeve - travel mm : 8.29	- rack travel mm : 4.00 - Rated speed rpm : 1065 - Tolerance 1/min : +- 15
Tolerance mm : + 0.15 - Rated speed rpm : 350 -	rack travel mm : 0.50 Tolerance mm : +- 0.50 Rated speed rpm : 1150
guide sleeve travel mm : 2.31 - 7.20	- Nated Speed (pill : 1130
Rated speed rpm : 690 - guide sleeve -	- LOW IDLE
travel mm : 5.08 - Tolerance mm : + 0.25 -	- control lever - position degree : 67.0
Rated speed rpm : 1160 - guide sleeve - travel mm : 11.50 -	 tolerance degree : + 4.0 Setting point w/out bumper spring
Tolerance mm : + 0.50 -	- Rated speed rpm : 200
GUIDE SLEEVE POSITION	- CRT mm min. :> 6.00
Rated speed rpm : 1011	- Testing:
Rack travel in mm : 13.80	- Rated speed rpm : 350

rack travel mm : 4.20
Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 490
Tolerance 1/min : +- 30

TORQUE CONTROL
Rated speed rpm : 900

: 415

rack travel mm : 14.80 Tolerance mm : +- 0.05

Rated speed rpm : 500 rack travel mm : 14.85 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

Rated speed rpm

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : rack travel mm : 10.00
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 250 rack travel mm : 10.80 Tolerance mm : + 0.20

Pressure hPa : 320 rack travel mm : 12.60 Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : Rated speed rpm : 500
Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +

: +- 5.0

Spreed

Tolerance cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 10.5

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated, rack must reach start position in max.

control lever setting.

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +- 0.50

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.20 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 25.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. : +- 7.0

Spreed

Tolerance

cm3/1000 strokes : 9.5

Check tolerance

cm3/1000s. : 13.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 13.11.97

Test oil

: ISO 4113

Combination No. : 0 402 746 636

Injection pump

Pump designation : PES6P120A720RS7445

EP type number : 0 412 726 973

Governor

Governer design. : RQ300/1100PA1360

Governer no. : 0 421 801 824

Cust. part No. : 618.00.08.0048

Customer-spec. information

Customer : SNF

: WD618.42 Motor Power KW : 310.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve : 1 457 413 010

Inlet press. bar :

1.5

Tolerance bar : +- 0.1

Overflow quantity

min. L/h : 155 Tolerance L/h : ← 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

: 208.5

Tolerance bar : + 1.5

D27

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

: 4.40 Prestroke mm

: +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm : 15.00

Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Start of delivery blocking

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.80

Tolerance mm : +- 0.05

Del. quantity	_	+ Tolerance mm : +- 0.10
cm3/1000 strokes	: 274.0	+
Tolerance	-	Rated speed rpm : 500 guide sleeve
cm3/1000 strokes	: - 1.0	travel mm : 6.00
		Tolerance mm : +- 0.10
Check tolerance cm3/1000s.	: +- 4.0	T Rated speed rpm : 1290
CIRC / 10000 .		guide sleeve
Spreed	-	travel mm : 11.50
Tolerance	-	Tolerance mm : + 0.50
cm3/1000 strokes	: 5.0	**************************************
		GUIDE SLEEVE POSITION
Check tolerance	1	+
cm3/1000s.	: 9.0	control lever
		position degree : 109
	-	Rated speed rpm : 600
Rated speed rpm	: 300	20.00
Rack travel in mm		Rack travel in mm : 20.00 Tolerance mm : + 0.80
Tolerance mm	: + 0.10	Total arice likit
Del. quantity	1	
cm3/1000 strokes	: 20.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes	: +- 3.0	t Rated speed rpm : 1100
Check tolerance	. +- 3.0	Rated speed rpm : 1100 Aneroid pressure
cm3/1000s.	: +- 6.0	hPa : 1200
Spreed	7	Del. quantity
Tolerance cm3/1000 strokes	: 8.0	cm3/1000 strokes : 274.0 Tolerance
Check tolerance	. 0.0	cm3/1000 strokes : +- 1.0
cm3/1000s.	: 12.0	Check tolerance
	=	+ cm3/1000s. + 4.0
(D) CETTING OF TAI	LICCTION DUMP	Spreed Tolerance
(B) SETTING OF IN WITH GOVERNOR	MECITON POMP	cm3/1000 strokes : 5.0
W1111 GOVE (11101)	-	Check tolerance
		cm3/1000s. : 9.0
GUIDE SLEEVE TRAV	EL -	
Rated speed rpm	: 1158	
guide sleeve	+	CONTROL LEVER
travel mm Tolerance mm	: 6.35 : + 0.15	t control lever
roterance mm	: 0.15	position degree : 99.0
Rated speed rpm	: 300	tolerance degree : +- 4.0
guide sleeve	·	
travel mm	: 1.74	RATED SPEED rack travel mm : 13.80
Tolerance mm	: + 0.20	Rated speed rpm : 1153
Rated speed rpm	: 1100	Folerance 1/min : +- 8
guide sleeve		
travel mm	: 6.00	rack travel mm : 4.00
Tolerance mm	: + 0.10	- Rated speed rpm : 1225 - Tolerance 1/min : +- 15
Rated speed rpm	: 425	- 1000141100 17111111
guide sleeve	+	rack travel mm : 0.70
travel mm	: 5.00 	Tolerance mm : +- 0.70

Rated speed rpm	: 1350	rack travel mm : 14.10 Tolerance mm : + 0.05 Pressure hPa : 375
LOW IDLE		rack travel mm : 12.40 Tolerance mm : + 0.20
control lever position degree tolerance degree		FUEL DELIVERY CHARACTERISTICS
Setting point w/o	out bumper spring	Aneroid pressure
Rated speed rpm	: 200	hPa : 1200 Rated speed rpm : 700 Del. quantity
CRT mm min.	: > 10.00	cm3/1000 strokes : 288.0 Tolerance
Testing:	+	cm3/1000 strokes : +- 3.0 Check tolerance
Rated speed rpm rack travel mm Tolerance mm	: 8.20	cm3/1000s. : +- 6.0
rack travel mm Rated speed rpm	: 2.00	Aneroid pressure hPa : - Rated speed rpm : 500
Tolerance 1/min		Del. quantity cm3/1000 strokes : 176.0 Tolerance
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 14.80	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Rated speed rpm rack travel mm Tolerance mm	: 700 : 14.85 : ← 0.10	STARTING FUEL DELIVERY Rated speed rpm : 100
ANEROID/ALTITUDE COMPENSATOR TEST	+	rack travel mm : 11.90 Tolerance mm : +- 0.30 Del. quantity cm3/1000 strokes : 125.0
SETTING	‡	Tolerance cm3/1000 strokes : +- 10.0
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 14.80 : + 0.10	Check tolerance cm3/1000s. : +- 14.0
Rated speed rpm Pressure hPa	: 500	LOW IDLE
rack travel mm Tolerance mm	: 11.90 : + 0.20	Rated speed rpm : 300
MEASUREMENT	‡	Rack travel in mm: 8.20 Tolerance mm: + 0.10
Rated speed rpm	: 500	Del. quantity cm3/1000 strokes : 20.0 Tolerance
Pressure hPa	: 700	cm3/1000 strokes : +- 3.0

E01

Check tolerance cm3/1000s. : +- 6.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 03, 11, 97

Test oil

: ISO 4113

Combination No. : 0 402 746 957

Injection pump

Pump designation : PES6P120A720RS7292

: -1

EP type number

: 0 412 726 939

Governor

Governer design. : RQV350...1150PA1074

: -2K

Governer no.

: 0 421 815 367

Cust. part No. : 0250741002

Customer-spec. information Customer : MB-NFZ

: 0M366LA

Motor

Power KW

: 157.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

Tolerance °C

40

Overflow valve : 1 417 413 047

Inlet press. bar :

Tolerance bar : + 0.1

1.5

Overflow quantity

min. L/h : 100 Tolerance L/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm

Tolerance mm

: 4.00 : + 0.05

Check

tolerance mm

: +- 0.10

Rack travel in mm : 20.50

Tolerance mm : \leftarrow 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW

: +- 0.75

Start of delivery blocking

*NW after s.o.d. : 3.30 Tolerance : +- 0.10

Check

tolerance *NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150	guide sleeve travel mm : 5.56 Tolerance mm : +- 0.25
Rack travel in mm: 14.10 Tolerance mm: : + 0.05	Rated speed rpm : 550 guide sleeve travel mm : 3.17
Del. quantity cm3/1000 strokes : 269.0	Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : +- 1.0	Rated speed rpm : 1480 guide sleeve travel mm : 13.50 Tolerance mm : +- 0.50
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	GOIDE SEEEVE POSITION
Tolerance cm3/1000 strokes : 8.0	control lever position degree : - 1 Rated speed rpm : 1331
Check tolerance cm3/1000s. : 12.0	Rack travel in mm : 13.50 Tolerance mm : +- 1.30
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 6.00 Tolerance mm : + 0.10	Rated speed rpm : 1150 Aneroid pressure hPa : 1500
Del. quantity cm3/1000 strokes : 13.0 Tolerance	Del. quantity cm3/1000 strokes : 269.0
<pre>cm3/1000 strokes : + 3.0 Check tolerance cm3/1000S. : + 6.0</pre>	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Spreed + Tolerance + Cm3/1000 strokes : 4.0 + Cm3/1000 strokes : 4.0	cm3/1000S. : +- 4.0 Spreed Tolerance
Check tolerance cm3/1000s. : 8.0	cm3/1000 strokes : 8.0 Check tolerance
+	cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1206 + guide sleeve +	position degree : 109.0 tolerance degree : +- 4.0
travel mm : 9.35 Tolerance mm : + 0.15	RATED SPEED rack travel mm : 13.40 Rated speed rpm : 1195
Rated speed rpm : 350 + guide sleeve +	Tolerance 1/min : +- 5
travel mm : 1.53 + 0.20 + 0.20	rack travel mm : 4.00 Rated speed rpm : 1325 Tolerance 1/min : +- 15
Rated speed rpm : 855	

rack travel mm Tolerance mm Rated speed rpm	: ← 0.70
LOW IDLE	
control lever position degree tolerance degree	: 65.0 : ← 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 250
CRT mm min.	: > 6.90
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 6.00 : +- 0.10
Rated speed rpm	: 400
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 14.10 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 950 : 13.95 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.30 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1150 : 1500 : 14.10 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1150 : - : 10.10 : + 0.15
MEASUREMENT	

Rated speed rpm	: 1150
Pressure hPa rack travel mm Tolerance mm	: 400 : 10.90 : + 0.05
Pressure hPa rack travel mm Tolerance mm	: 850 : 12.50 : + 0.15
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 200
Check speed 1/min Check	: > 80
speed 1/min	: < 250
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 265.0 : + 2.0 : + 5.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 500 : 120.0 : + 1.0 : + 4.0
STARTING FUEL DEL	IVERY
Set starting CRT	at K-cam.

Rated speed rpm : 100

rack travel mm : 13.50 : +- 0.20 Tolerance mm Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance

cm3/1000s.: ← 19.0

LOW IDLE

Rated speed rpm : 350

6.00 Rack travel in mm : Tolerance mm : **←** 0.10 Del. quantity

cm3/1000 strokes : 13.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

cm3/1000s.6.0

Spreed Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.11.97 Test oil : ISO 4113

Combination No. : 0 402 796 042

Injection pump

Pump designation : PES6H120/320RS26 EP type number : 0 412 726 014

Governor

Governer design. : RE36

Governer no. : 0 421 890 374

Cust. part No. : 8192940 PO2 v.10/97

Customer-spec. information

Customer : VOLVO-TRUCK
Motor : D7C EURO II

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C : 40 Tolerance °C : \leftarrow 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 8.00 Tolerance mm : + 0.05 Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2

: - 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.30

Check

tolerance °NW : +- 0.75

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)

		+
Uact V :	3.100 13.00	}
CRT mm :	13.00	+ ENGINE-SPEED SENSOR
Tolerance mm : +/-	- 0.05	+ (All P and R pumps not
Check		+ H and M pumps)
tolerance mm : +/-	- 0.10	* ***********************************
Shaali walio		Test with control rod
Check value		in stop position
(P, R and H pump)		Engine speed min-1: 60
		Amplitude V · 1 4
Uact V :	1.700	Amplitude V : 1.4 Tolerance V : +/- 0.6
	6.15	Check
Tolerance mm : +/-		+ tolerance V : +/- 1.20
Check		+
tolerance mm : +/-	- 0.30	+ Engine speed min-1: 600
		+ Difference
.		+ Amplitude to
Setting point		+ Amplitude V : max.1.4
(dimuq M)		†
Uact V :	7 100	T
CRT mm :	3.100 12.50	(c) INJECTION PUMP WITH POSITIONER
Tolerance mm : +/-		TO THOSE TOWN OF WITH TOUTHOUSE
Check	0.03	TEST POINT V1
	- 0.10	+
		+ Rated speed rpm : 660
Check value		+ Uact V : 2.900
(M pump)		+ Prestroke solenoid
		+ Stroke mm : 5.30
Uact V :	1.700	+ Del. quantity
CRT mm :	5.50	+ cm3/1000 strokes : 308.0
Tolerance mm : +/-	- 0.25	+ Tolerance + cm3/1000 strokes : +- 1.0
Check tolerance mm : +/-	~ 0.30	+ cm3/1000 strokes : + 1.0 + Check tolerance
toterance mm : +/-	- 0.50	+ cm3/1000s. : +- 5.0
Stop position		Spreed
(P, R and H pump)		+ Tolerance
ci y it alia ii pames		+ cm3/1000 strokes : 8.0
Uact V : Val	ue with	+ Check tolerance
deenergised	d adjusting magnet	+ cm3/1000s. : 11.0
	d control rod in	+ FUEL DELIVERY CHARACTERISTICS
	p position.	+
CRT mm :	0.75	2.4.4
	- 0.25	Rated speed rpm : 950
Check	- 0.35	TEST POINT L1
tolerance mm : +/-	- 0.33	I TEST FOLIVI ET
Stop position		Rated speed rpm : 300
(M pump)		+ Uact V : 1.670
Uact V :	0,720	+ Tolerance Volt : +- 0.060
	0,065	+ Check tolerance
CRT mm :	1,00	+ Volt : + 0.060
		+ Prestroke solenoid
Starting position		+ Stroke mm : 5.30
(M pump)	/ 500	Del. quantity
Uact V :	4,500 0.115	- cm3/1000 strokes : 16.0
Tolerance Volt : +	0,115 19,00	+ Tolerance + cm3/1000 strokes : +- 2.0
CRT mm :	0,80	+ Spreed
Tolerance mm : +-	0,00	T ohi eed

Tolerance cm3/1000 strokes : 5.0

Check tolerance cm3/1000s. 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.08.97 Test oil : ISO 4113

Combination No. : 0 403 444 150

Injection pump

Pump designation : PES4MW100/720RS1212 EP type number : 0 413 404 114

Governor

Governer design. : RQV300...1300MW50

: -23

Governer no. : 0 420 083 269

Cust. part No. : 0250741602

Customer—spec. information Customer : MB-NFZ Motor : OM364LA Power KW : 102.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.15 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 100.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance cm3/1000s. : 6.0	control lever position degree : 112.0 tolerance degree : +- 4.0
Rated speed rpm : 300	RATED SPEED + rack travel mm : 12.10
Rack travel in mm : 6.40 Tolerance mm : + 0.10 Del. quantity	Rated speed rpm : 1345 Tolerance 1/min : +- 5
cm3/1000 strokes : 12.0 Tolerance	rack travel mm : 4.00 Rated speed rpm : 1465
cm3/1000 strokes : +- 2.0 Check tolerance	Tolerance 1/min : + 15
cm3/1000s. : +- 4.5 Spreed Tolerance	+ rack travel mm : 0.50 + Tolerance mm : +- 0.50 + Rated speed rpm : 1550
cm3/1000 strokes : 3.5 Check tolerance	Hatta speed Ipiii . 1990
cm3/1000s. : 5.5	+
(B) SETTING OF INJECTION PUMP	+ LOW IDLE
WITH GOVERNOR	control lever position degree : 75.0 tolerance degree : +- 4.0
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
control lever position degree : - 1 Rated speed rpm : 1350	Rated speed rpm : 200 CRT mm min. :> 8.00
Rack travel in mm : 16.50 Tolerance mm : + 1.30	+ Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 300 rack travel mm : 6.40 Tolerance mm : + 0.10
Rated speed rpm : 1300	
Aneroid pressure hPa : 700 Del. quantity	TORQUE CONTROL Rated speed rpm : 1300 rack travel mm : 13.15
cm3/1000 strokes : 100.0 Tolerance	Tolerance mm : +- 0.05
cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0	Rated speed rpm : 600 rack travel mm : 13.20 Tolerance mm : + 0.10
Spreed Tolerance	TOTAL MAIN
cm3/1000 strokes : 3.5 Check tolerance	ANEROID/ALTITUDE COMPENSATOR TEST
cm3/1000s. : 6.0	+ + SETTING
CONTROL LEVER	Rated speed rpm : 500 Pressure hPa : 700
	+ rack travel mm : 13.20

Tolerance mm	: ← 0.10	
Rated speed rpm	: 500	
Pressure hPa	: -	
rack travel mm	: 9.90	
Tolerance am	: + 0.10	
MEASUREMENT		
Data dama ada man	: 500	
Rated speed rpm	: 500	
Pressure hPa	: 400	
rack travel mm	: 12.70 : + 0.10	
Tolerance mm	: ← 0.10	
Pressure hPa	: 200	
rack travel mm	: 11.00	
Tolerance mm	: ← 0.10	
Start interlock		
Dated speed nom	• > 100	
Rated speed rpm Rated speed rpm	: < 220	
racea opeca i piii		
Check		
speed 1/min	: > 80	
speed 1/min Check		
speed 1/min Check speed 1/min	: < 240	
speed 1/min Check	: < 240 ARACTERISTICS	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa	: < 240 ARACTERISTICS : 700	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm	: < 240 ARACTERISTICS : 700	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity	: < 240 RACTERISTICS : 700 : 600	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: < 240 RACTERISTICS : 700 : 600	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: < 240 RACTERISTICS : 700 : 600	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: < 240 RACTERISTICS : 700 : 600 : 87.5	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5 : + 4.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5 : + 4.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity	: < 240 RACTERISTICS : 700 : 600 : 87.5 : ← 1.5 : ← 4.0 : 5.0 : 7.0 : 500	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: < 240 RACTERISTICS : 700 : 600 : 87.5 : + 1.5 : + 4.0 : 5.0 : 7.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance Cm3/1000 strokes Tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0 : 7.0 : 500 : 35.0	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	: < 240 RACTERISTICS : 700 : 600 : 87.5 : ← 1.5 : ← 4.0 : 5.0 : 7.0 : 500	
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance Tolerance Cm3/1000 strokes Tolerance	: < 240 RACTERISTICS : 700 : 600 : 87.5 : +- 1.5 : +- 4.0 : 5.0 : 7.0 : 500 : 35.0	

STARTING FUEL DEL	IVER	Y	
Rated speed rpm	:	100	
Del. quantity cm3/1000 strokes	:	90.0	
Tolerance cm3/1000 strokes	: +	- 5.0	
Check tolerance cm3/1000s.	: +	- 8.0	
			
LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mm	:	6.40	
Tolerance mm Del. quantity	: +	- 0.10	
cm3/1000 strokes Tolerance	:	12.0	
cm3/1000 strokes Check tolerance	: +	- 2.0	
cm3/1000s.	: +	- 4.5	
Spreed Tolerance			
cm3/1000 strokes	:	3.5	
Check tolerance cm3/1000s.	:	5.5	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 25.08.97 Edition : ISO 4113 Test oil

Combination No. : 0 403 466 137

Injection pump

Pump designation : PES6MW100/120RS1148

EP type number : 0 413 406 143

Governor

Governer design. : RSV400...900MW7A319

: -24

Governer no. : 0 420 085 216

Cust. part No. : 3921082

Customer-spec. information Customer : CDC

: 6 CTA Motor

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 017 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

: +- 0.75 tolerance °NW

Start of delivery mark

*NW after s.o.d. : 9.00

Tolerance : \leftarrow 0.50 Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.55 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 184.0

Tolerance cm3/1000 strokes : + 1.0 CONTROL LEVER Check tolerance cm3/1000s. control lever 4.0 position degree : 109.0 tolerance degree : +- 4.0 Spreed RATED SPEED Tolerance rack travel mm : 12.50 cm3/1000 strokes : 4.0 Rated speed rpm : 945 Tolerance 1/min : +-Check tolerance cm3/1000s. 7.5 rack travel mm 4.00 : Rated speed rpm : 985 Tolerance 1/min : +-Rack travel in mm: 5.80 rack travel mm : 1.00 : + 0.70 1.00 Tolerance mm : \leftarrow 0.10 Tolerance mm 1125 Rated speed rpm : (B) SETTING OF INJECTION PUMP rack travel mm : 4.00 WITH GOVERNOR Rated speed rpm : 990 Tolerance 1/min : +-GUIDE SLEEVE POSITION LOW IDLE control lever position degree : - 3 Rated speed rpm : 800 control lever position degree : 79.0 Rack travel in mm : 0.65 tolerance degree : +- 4.0 Tolerance mm : \leftarrow 0.35 Setting point w/out bumper spring governor spring Rated speed rpm : 100 pre-tension 4.00 click setting x : CRT mm min. :> 19.00FULL LOAD DELIVERY AT FULL LOAD STOP Testing: Rated speed rpm 400 Rated speed rpm : 900 : rack travel mm : Aneroid pressure 5.80 : +- 0.10 Tolerance mm hPa Del. quantity 2.00 cm3/1000 strokes : 184.0 rack travel mm : Rated speed rpm : 460 Tolerance Tolerance 1/min : +- 30 cm3/1000 strokes : + 1.0 Check tolerance cm3/1000S. : +- 4.0 TORQUE CONTROL Spreed Rated speed rpm : 900 Tolerance rack travel mm : 13.55 cm3/1000 strokes : 4.0 Tolerance mm : + 0.05 Check tolerance cm3/1000s. : 7.5

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.00 : + 1.00 Tolerance mm Del. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes : \leftarrow 10.0

Check tolerance

cm3/1000s.: +- 13.0

LOW IDLE

Rack travel in mm: 5.80 Tolerance mm : \leftarrow 0.10

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.11.97 Test oil : ISO 4113

Combination No. : 0 400 874 250

Injection pump

Pump designation : PES4A95D32ORS2807 EP type number : 0 410 894 994

Governor

Governer design. : RSV375...1125A2C2178

: -7R

Governer no. : 0 420 233 279

Cust. part No. :

Customer—spec. information Customer : VALMET Motor : 420 DS Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-4-3

Phasing : 0-90-180-270

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : + 0.50
Difference ° CS : 5.00

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.25
Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance + cm3/1000s. : + 3.0	Check tolerance cm3/1000s. : 8.0
Spreed	
Tolerance cm3/1000 strokes : 3.5	CONTROL LEVER
Check tolerance cm3/1000s. : 8.0	position degree : 101.0 tolerance degree : +- 4.0
Rated speed rpm : 375	RATED SPEED rack travel mm : 10.20 Rated speed rpm : 1170 Tolerance 1/min : +- 5
Rack travel in mm: 5.60 + Tolerance mm: + 0.10 + Del. quantity cm3/1000 strokes: 21.0 + Tolerance mm:	rack travel mm : 4.00 Rated speed rpm : 1250 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : + 2.0 + Check tolerance cm3/1000s. : + 4.5	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1410
Spreed Tolerance cm3/1000 strokes: 5.5 Check tolerance cm3/1000s.: 9.0	rack travel mm : 4.00 Rated speed rpm : 1260 Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
T	
GUIDE SLEEVE POSITION	control lever position degree : 75.0 tolerance degree : +- 4.0
GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 375
control lever position degree : - 3	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring
control lever position degree : -3 Rated speed rpm : 800 Rack travel in mm : 0.50	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.10 Tolerance mm : +- 0.10
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1125	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.10 Tolerance mm : +- 0.10 Rated speed rpm : 100
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.10 Tolerance mm : +- 0.10 Rated speed rpm : 100 CRT mm min. : > 19.50
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1125 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 87.5	position degree : 75.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.10 Tolerance mm : +- 0.10 Rated speed rpm : 100 CRT mm min. : > 19.50 Testing: Rated speed rpm : 375 rack travel mm : 5.60

Rated speed rpm : 1125 rack travel mm : 11.25 Tolerance mm : +-- 0.05

Rated speed rpm : 500 rack travel mm : 11.60 Tolerance mm : + 0.05

Rated speed rpm : 750 rack travel mm : 11.55 Tolerance mm : +- 0.05

Rated speed rpm : 965 rack travel mm : 11.35 Tolerance mm : $\leftarrow 0.10$

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa :

Rated speed rpm : 750 Del. quantity

cm3/1000 strokes : 87.5

Tolerance cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 202.0

Tolerance cm3/1000 strokes : +- 8.0

Check tolerance cm3/1000s. : + 11.0

LOW IDLE

Rated speed rpm : 375

Rack travel in mm: 5.60
Tolerance mm: + 0.10
Del. quantity

cm3/1000 strokes : 21.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 07.11.97 Test oil : ISO 4113

Combination No. : 0 400 874 257

Injection pump

Pump designation : PES4A95D32ORS2807 EP type number : 0 410 894 994

Governor

Governer design. : RSV375...1125A2C898R

Governer no. : 0 420 233 351

Cust. part No. : 8367 54718

Customer—spec. information Customer : SISU Motor : 420 DS Power KW : 75.0

TEST BENCH REQUIREMENTS

Inlet line : 2.3

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.55
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-2-4-3

Phasing : 0-90-180-270

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : + 0.50
Difference °CS : 5.00

BASIC SETTING

Rated speed rpm : 1125

Rack travel in mm : 11.25 Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : + 3.0	Check tolerance cm3/1000s. : 8.0
Tolerance cm3/1000 strokes : 3.5	CONTROL LEVER
Check tolerance cm3/1000s. : 8.0	control lever position degree : 101.0 tolerance degree : +- 4.0
Rated speed rpm : 375	RATED SPEED rack travel mm : 10.20 Rated speed rpm : 1170 Tolerance 1/min : +- 5
Rack travel in mm : 5.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 21.0	rack travel mm : 4.00 Rated speed rpm : 1250 Tolerance 1/min : +- 15
Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1410
Tolerance cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0	rack travel mm : 4.00 Rated speed rpm : 1260 Tolerance 1/min : +- 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 75.0 tolerance degree : +- 4.0
control lever position degree : -3 Rated speed rpm : 800	Setting point w/out bumper spring Rated speed rpm : 375 rack travel mm : 5.10
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Tolerance mm : + 0.10 Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. : > 19.50
Rated speed rpm : 1125 Aneroid pressure	Testing:
hPa : - + Del. quantity cm3/1000 strokes : 87.5 Tolerance +	Rated speed rpm : 375 rack travel mm : 5.60 Tolerance mm : + 0.10
cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0	rack travel mm : 2.00 Rated speed rpm : 495 Tolerance 1/min : +- 30
Spreed Tolerance cm3/1000 strokes : 3.5	TORQUE CONTROL

Rated speed rpm : 1125
rack travel mm : 11.25
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.60
Tolerance mm : ± 0.05

Rated speed rpm : 750 rack travel mm : 11.55 Tolerance mm : + 0.05

Rated speed rpm : 965 rack travel mm : 11.35 Tolerance mm : \leftarrow 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 750

Del. quantity

cm3/1000 strokes : 87.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 202.0

Tolerance

cm3/1000 strokes : + 8.0

Check tolerance

cm3/1000s. : + 11.0

LOW IDLE

Rated speed rpm : 375

Rack travel in mm : 5.60 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 21.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : \leftarrow 4.5

Spreed

Tolerance

cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 12.11.97 Edition Test oil : ISO 4113

Combination No. : 9 400 030 642X

Injection pump

Pump designation : PES4A80D320RS3501 EP type number : 9 410 037 201

Governor

Governer design. : RSV400...2000A0C806R

Governer no. : 9 420 034 293

Cust. part No. : BTL

Customer-spec. information

: 0M616 DI____ Motor

TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet

temp. °C 40 : +- 2.0 Tolerance °C

Overflow valve : 9 451 037 458

Inlet press. bar : 1.0

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.30 Tolerance mm : + 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1- 3- 4- 2

: 0-90-180-270 Phasing

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1600

Rack travel in mm: 8.00 Tolerance mm : \leftarrow 0.05

Del. quantity

cm3/1000 strokes : 37.0

Tolerance

cm3/1000 strokes : \leftarrow 0.5

Check tolerance

cm3/1000s. : +- 2.0

Spreed

Tolerance

cm3/1000 strokes : 2.5

Check tolerance

4.0 cm3/1000s.

	1
	t control lever
	position degree : 99.0
Rated speed rpm : 400	tolerance degree : +- 4.0
Rack travel in mm : 5.50	RATED SPEED
Tolerance mm : + 0.10	rack travel mm : 7.00
Del. quantity	Rated speed rpm : 1680
cm3/1000 strokes : 9.0 Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : +- 1.5	rack travel mm : 4.00
Check tolerance	Rated speed rpm : 1725
cm3/1000s. : + 3.5	Tolerance 1/min : +- 15
Spreed Tolerance	rack travel mm : 0.85
cm3/1000 strokes : 4.0	+ Tolerance mm : +- 0.55
Check tolerance	+ Rated speed rpm : 1900
cm3/1000s. : 6.0	+ rack travel mm : 4.00
	Rated speed rpm : 1735
(B) SETTING OF INJECTION PUMP	Tolerance 1/min : +- 15
WITH GOVERNOR	†
	Ī
GUIDE SLEEVE POSITION	+ LOW IDLE
	Ţ
control lever	control lever
position degree : FREE	position degree : 73.0
Rated speed rpm : 1000	+ tolerance degree : +- 4.0
Rack travel in mm : 0.50	Setting point w/out bumper spring
Tolerance mm : + 0.20	+
governor spring	+ Rated speed rpm : 400 + rack travel mm : 5.00
pre-tension	+ Tolerance mm : +- 0.10
click setting x : 4.75	+
	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD ST	OP
	}
Rated speed rpm : 1600	+ Testing:
Aneroid pressure hPa : -	Rated speed rpm : 400
Del. quantity	+ rack travel mm : 5.50
cm3/1000 strokes : 37.0	† Tolerance mm : +- 0.10
Tolerance cm3/1000 strokes : +- 0.5	rack travel mm : 2.00
Check tolerance	+ Rated speed rpm : 650
cm3/1000s. : $+$ 2.0	+ Tolerance 1/min : +- 30
Spreed Tolerance	İ
cm3/1000 strokes : 2.5	TORQUE CONTROL
Check tolerance	Rated speed rpm : 1600
cm3/1000s. : 4.0	+ rack travel mm : 8.00 + Tolerance mm : +- 0.05
	+ Focerance nan : - 0.05
	Rated speed rpm : 500_
CONTROL LEVER	+ rack travel mm : 8.75

Tolerance mm	: +- 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 800 : 8.50 : + 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 8.00 : ← 0.10	
FUEL DELIVERY CHARACTERISTICS		
Aneroid pressure	······································	
hPa Rated speed rpm	: – : 1000	
Del. quantity cm3/1000 strokes	: 36.0	
Tolerance cm3/1000 strokes Check tolerance	: + 1.5	
cm3/1000s.	: +- 3.0	
Tolerance cm3/1000 strokes	: 3.5	
Check tolerance cm3/1000s.	: 7.0	
Aneroid pressure hPa	: -	
Rated speed rpm Del. quantity		
cm3/1000 strokes Tolerance		
cm3/1000 strokes Check tolerance	: + 1.5	
cm3/1000s. Spreed	: ← 3.0	
Tolerance cm3/1000 strokes	: 3.5	
Check tolerance cm3/1000s.	: 7.0	
STARTING FUEL DELIVERY		
Rated speed rpm rack travel mm Tolerance mm	: 100 : 11.50 : + 0.25	
LOW IDLE		
LOW INCE		

Rated speed rpm	:		400
Rack travel in mm	:		5.50
Tolerance mm	:	+	0.10
Del. quantity			
cm3/1000 strokes	:		9.0
Tolerance			
cm3/1000 strokes	:	+	1.5
Check tolerance			
cm3/1000s.	:	+-	3.5
Spreed			
Tolerance			
cm3/1000 strokes	:		4.0
Check tolerance			
cm3/1000s.	:		6.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 21.11.97 : ISO 4113

Combination No. : 0 402 036 761

Injection pump

Pump designation : PES6P110A120RS3353 EP type number : 0 412 016 752

Governor

Governer design. : RQV450...1100PA1233K

Governer no. : 0 421 815 474

Cust. part No. : 3926886

Customer-spec. information Customer : CDC Motor : 6CTA Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 093

2.0 Inlet press. bar : Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 Tolerance bar

Test lines : 1 680 750 015

Outside diameter : 6.0 x inside diameter : 3.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

: 3.60 Prestroke mm : + 0.05 Tolerance mm

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm: 10.50 Tolerance mm : \leftarrow 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel 13.00 Difference ° CS : 1.20

BASIC SETTING

Rated speed rpm	: 1000	guide sleeve travel mm : 4.75 Tolerance mm : +- 0.25
Rack travel in mon Tolerance mon	: 13.15 : +- 0.05	Rated speed rpm : 1570 guide sleeve travel mm : 13.50
Del. quantity cm3/1000 strokes	: 200.0	Tolerance mm : + 0.50
Tolerance cm3/1000 strokes	: + 1.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance cm3/1000s.	: +- 4.0	+ Rated speed rpm : 1000 + Aneroid pressure + hPa : 1200
Spreed		+ Del. quantity + cm3/1000 strokes : 200.0 + Tolerance
Tolerance cm3/1000 strokes	: 8.0	+ cm3/1000 strokes : + 1.0 + Check tolerance + cm3/1000s. : + 4.0
Check tolerance cm3/1000s.	: 12.0	+ Spreed + Tolerance + cm3/1000 strokes : 8.0
Dated aread are	. 500	Check tolerance cm3/1000s. : 12.0
Rated speed rpm	: 500	Ţ Ţ
Rack travel in mm Tolerance mm Del. quantity	: 6.20 : + 0.20	CONTROL LEVER
cm3/1000 strokes Tolerance cm3/1000 strokes		control lever position degree : 115.0 tolerance degree : +- 6.0
Check tolerance cm3/1000s.	: +	+ RATED SPEED
Spreed Tolerance cm3/1000 strokes	: 4.0	+ rack travel mm : 11.40 + Rated speed rpm : 1170 + Tolerance 1/min : + 15
Check tolerance cm3/1000s.	: 8.0	+ rack travel mm : 8.00 + Rated speed rpm : 1230
(B) SETTING OF IN	IECTION DIMP	Tolerance 1/min : +- 5
WITH GOVERNOR		rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1360
GUIDE SLEEVE TRAV	EL	Rated Speed (pill . 1500
Rated speed rpm guide sleeve	: 1214	
travel mm Tolerance mm	: 8.09 : ← 0.15	LOW IDLE
Rated speed rpm guide sleeve travel mm	: 500	control lever position degree : 79.0 tolerance degree : +- 6.0
Tolerance mm	: + 0.25	+
Rated speed rpm	: 890	+ Control lever difference + Grad : 36.0

tolerance degree	· +- 6 N	1	Rated speed rpm	: > 100
toterance degree	. 1- 0.0	Ŧ	Rated speed rpm	
Setting point w/o	ut bumper spring	†	Check	
Rated speed rpm	: 400	Ī	speed 1/min Check	: > 80
CRT mm min.	: > 7.90	1	speed 1/min	: < 390
Testing:		+		
Detect energy man	. 500	†	FUEL DELIVERY CHA	ARACTERISTICS
Rated speed rpm rack travel mm	: 6.20	Ī		
Tolerance mm	: + 0.20	I	Aneroid pressure	
TO CET GITCE TIKE	0.25	1	hPa	: 1200
Rated speed rpm	: 500	+	Rated speed rpm	: 750
		+	Del. quantity	
		+	cm3/1000 strokes	: 189.5
TORQUE CONTROL	4000	+	Tolerance	
Rated speed rpm	: 1000	†	cm3/1000 strokes	
rack travel mm Tolerance mm	: 13.15 : +- 0.05	†	Check tolerance cm3/1000s.	
roterance mm	: +- 0.05	Ī	Spreed	: 0.0
Rated speed rpm	: 750	Ţ	Tolerance	
rack travel mm	: 12.70	1	cm3/1000 strokes	: 8.0
Tolerance mm	: + 0.20	+	Check tolerance	
		+	cm3/1000s.	: 12.0
Rated speed rpm	: 1100	+		
rack travel mm Tolerance mm	: 12.50	+		
Tolerance mm	: ← 0.20	†	Aneroid pressure	1200
		†	hPa	: 1200
ANEDOTO / AL TITLIDE			Rated speed rpm Del. quantity	: 1700
ANEROID/ALTITUDE COMPENSATOR TEST		I	cm3/1000 strokes	• 178 5
CONFERENCE TEST		1	Tolerance	. ,,,,,,
		 	cm3/1000 strokes	: 3.0
SETTING		+	Check tolerance	
		+	cm3/1000s.	: +- 6.0
Rated speed rpm	: 1000	+		
Pressure hPa	: 1200	†	A	
Detect enced non	: 1000	Ť	Aneroid pressure hPa	
Rated speed rpm Pressure hPa	• -	I	Rated speed rpm	· : 1000
rack travel mm	· : 10.55	1	Del. quantity	
Tolerance mm	: + 0.20	1	cm3/1000 strokes	: 121.0
		+	Tolerance	
MEASUREMENT		+	cm3/1000 strokes	: +- 2.0
	4000	†	Check tolerance	/ 0
Rated speed rpm	: 1000	†	cm3/1000s.	: +- 4.0
Pressure hPa	: 890	I		
rack travel mm	: 12.60	1		
Tolerance mm	: ← 0.30	1	STARTING FUEL DEL	IVERY
		+		
Pressure hPa	: 720	+	Rated speed rpm	: 100
rack travel mm	: 11.15	+	rack travel mm	: 21.00
Tolerance mm	: ← 0.20	+	Tolerance mm	: +- 0.50
		†	Del. quantity	: 161.0
Stant intaclast			cm3/1000 strokes Tolerance	. 101.0
Start interlock		I	cm3/1000 strokes	: +- 20.0
		Т	Cm3/ 1000 3 C1 ONE3	

Check tolerance cm3/1000s. : +- 25.0

LOW IDLE

Rated speed rpm : 500

Rack travel in mm : 6.20 Tolerance mm : + 0.20

Del. quantity

cm3/1000 strokes : 28.5

Tolerance

cm3/1000 strokes : \leftarrow 3.0

Check tolerance

cm3/1000s. : +- 5.0

Spreed Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s. : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 21.11.97

Test oil

: ISO 4113

Combination No. : 0 402 046 860

Injection pump

Pump designation : PES6P110A320LS3330 EP type number : 0 412 016 745

Governor

Governer design. : RQV350...1150PA1130K

Governer no.

: 0 421 815 386

Cust. part No. : 1823135091

Customer-spec. information Customer : NAVISTAR : DT-466 Motor Power KW : 156.5

TEST BENCH REQUIREMENTS

: 2.4 Inlet line

Test oil inlet

temp. °C 40 Tolerance °C

: 2 417 413 076 Overflow valve

Inlet press. bar : 2.8 Tolerance bar : +-

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar

: 1 680 750 015 Test lines

Outside diameter : 6.0 x inside diameter : 3.0 600 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm 3.00 : +- 0.05Tolerance mm Check

tolerance mm : + - 0.10

Rack travel in mm : 15.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance $^{\circ}NW$: +- 0.75

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

1 Barrel no. :

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm: 13.55 Tolerance mm : \leftarrow 0.05

F01

Del. quantity +	Tolerance
cm3/1000 strokes : 150.0	cm3/1000 strokes : +- 1.0 Check tolerance
Tolerance	cm3/1000s. : +- 3.0
cm3/1000 strokes : +- 1.0	Spreed Tolerance
Check tolerance	cm3/1000 strokes : 8.0
cm3/1000s. : +- 3.0	Check tolerance cm3/1000s. : 12.0
Spreed	cm3/1000s. : 12.0
Tolerance +	
cm3/1000 strokes : 8.0	CONTROL LEVER
Check tolerance	control lever
cm3/1000s. : 12.0	position degree : 123.0 tolerance degree : +- 6.0
	-
Rated speed rpm : 325	RATED SPEED
Rated speed rpm : 323	rack travel mm : 13.25 Rated speed rpm : 1205
Rack travel in mm: 7.20	Tolerance 1/min : +- 15
Tolerance mm : + 0.10 +	
Del. quantity	rack travel mm : 4.00
cm3/1000 strokes : 27.0	Rated speed rpm : 1375
Tolerance + cm3/1000 strokes : + 2.0 +	Tolerance 1/min : +- 5
Check tolerance	rack travel mm : 0.50
cm3/1000s. : + 4.5	Tolerance mm : +- 0.50
Spreed	Rated speed rpm : 1500
Tolerance +	
cm3/1000 strokes : 4.0 + Check tolerance +	
cm3/1000s. : 6.5	
	LOW IDLE
(B) SETTING OF INJECTION PUMP +	
WITH GOVERNOR	control lever
+	position degree : 79.0
+	tolerance degree : +- 6.0
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
+	Rated speed rpm : 275
control lever + position degree : - 1 +	CRT mm min. :> 8.00
position degree : - 1 Rated speed rpm : 1305	CK1 MM M171. ; > 0.00
+	Testing:
Rack travel in mm: 13.25	7.5
Tolerance mm : + 1.30 +	Rated speed rpm : 325 rack travel nm : 7.20
<u> </u>	Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	
+	Rated speed rpm : 405
Rated speed rom : 750	
Aneroid pressure hPa : 1200	TORQUE CONTROL
Del. quantity	Rated speed rpm : 750
cm3/1000 strokes : 150.0	rack travel mm : 13.55
+	Tolerance mm : +- 0.05

Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm	: 14.15 : ← 0.10 : 600 : 13.10	+ Check tolerance + cm3/1000s. : + 4.0 + Spreed + Tolerance + cm3/1000 strokes : 8.0 + Check tolerance + cm3/1000s. : 12.0
Tolerance mm	: +- 0.20	
		Aneroid pressure
ANEROID/ALTITUDE		+ hPa : -
COMPENSATOR TEST		+ Rated speed rpm : 1150 + Del. quantity
		+ cm3/1000 strokes : 100.0
SETTING		† Tolerance
Rated speed rpm	: 1150	+ cm3/1000 strokes : +- 1.0 + Check tolerance
Pressure hPa	: 1200	- cm3/1000s. : +- 4.0
Pressure hPa rack travel mm Tolerance mm	: 14.15	†
loterance mm	: +- 0.10	<u> </u>
Rated speed rpm	: 1150	STARTING FUEL DELIVERY
Pressure hPa rack travel mm	: -	Posta di anno
Tolerance mm		+ Rated speed rpm : 100 + rack travel mm : 21.00
		† Tolerance mm : +- 0.50
MEASUREMENT		+ Del. quantity + cm3/1000 strokes : 140.0
Rated speed rpm	: 1150	Tolerance
		cm3/1000 strokes : +- 20.0
Pressure hPa rack travel mm		+ Check tolerance + cm3/1000s. : +- 25.0
Tolerance mm		+
Pressure hPa	: 230	+
rack travel mm		
Tolerance mm	: ← 0.05	LOW IDLE
·	·	+ Rated speed rpm : 325
Start interlock		+
Data dan sadan		+ Rack travel in mm: 7.20
Rated speed rpm Rated speed rpm	: > 100 : < 280	† Tolerance mm : +- 0.10 + Del. quantity
•		+ cm3/1000 strokes : 27.0
Check speed 1/min	: > 80	+ Tolerance + cm3/1000 strokes : +- 2.0
Check	. / 00	Check tolerance
speed 1/min	: < 290	+ cm3/1000s. : +- 4.5
		Spreed Tolerance
FUEL DELIVERY CHA	RACTERISTICS	- cm3/1000 strokes : 4.0
		+ Check tolerance
Aneroid pressure		+ cm3/1000s. : 6.5
hPa	: 1200	+
Rated speed rpm	: 1150	+
Del. quantity cm3/1000 strokes	: 163.0	
Tolerance	. 105.0	End of test specification sheet
cm3/1000 strokes	: +- 2.0	+

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.11.97 : ISO 4113

Combination No. : 0 402 196 703

Injection pump

Pump designation : PES6P120A720RS3184

EP type number : 0 412 026 727

Governor

Governer design. : RE24

Governer no. : 0 421 890 018

Cust. part No. : RE 57372

Customer-spec. information Customer : DEERE

Motor

: 6076 HRW35 : 181.0

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

40

Tolerance °C : - 2.C

Overflow valve : 2 417 413 077

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : +- 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0

x length mm :

600

REMARKS

Pump-specific values in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance imm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 10.50

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

F04

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 VTESTING & SETTING RACK TRAVEL SENSOR **POSITION** Engine speed min-1: 0 Setting point (P, R and H pump) Uact V 3.100 13.00 CRT mm : +/- 0.05 Tolerance mm Check tolerance mm : +/- 0.10 Check value (P, R and H pump) 1.700 Uact V : CRT mm 6.15 Tolerance mm : +/- 0.25 Check tolerance mm : ± -0.30 Setting point (amuq M) Uact V 3.100 12.50 CRT mm Tolerance mm : +/-0.05Check : +/- 0.10 tolerance mm Check value (M pump) 1.700 Uact V CRT mm 5.50 Tolerance mm : +/- 0.25 Check : +/- 0.30 tolerance mm Stop position (P, R and H pump) Uact V : Value with deenergised adjusting magnet and control rod in stop position. 0.75 CRT mm : +/- 0.25 Tolerance mm Check

tolerance mm : $\pm /-0.35$ Stop position (amua M) Uact V 0,720 Tolerance Volt : + 0.065CRT mm 1,00 Starting position (qmuq M) Uact V 4,500 Tolerance Volt : +- 0.115CRT mm : 19,00 Tolerance mm : +- 0,80 ENGINE-SPEED SENSOR (All P and R pumps not H and M pumps) Test with control rod in stop position Engine speed min-1: ćΟ Amplitude V : 1.4 Tolerance V : +/- 0.6 Check tolerance V : ± 1.20 Engine speed min-1: 600 Difference Amplitude to Amplitude V : max.1.4 (C) INJECTION PUMP WITH POSITIONER TEST POINT V1 Rated speed rpm : 1100 Uact V 2.710 Del. quantity cm3/1000 strokes : 141.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : +-4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. 9.0 FUEL DELIVERY CHARACTERISTICS 700 Rated speed rpm Uact V 2.710 Del. quantity cm3/1000 strokes : 142.0

Tolerance	
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: ← 6.0
Spreed Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
CIID/ 10005.	: 12.0
TEST POINT L1	
Rated speed rpm	: 425
Uact V Tolerance Volt	: 1.400 : +- 0.060
Check tolerance	: 0.000
Volt	: - 0.060
Del. quantity cm3/1000 strokes	: 21.0
Tolerance	
cm3/1000 strokes Spreed	: +- 3.0
Tolerance	
cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 10.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Uact V	: 4.600
Del. quantity cm3/1000 strokes	: 100.0
Tolerance	. 100.0
cm3/1000 strokes	: + 10.0
Check tolerance cm3/1000s.	: +- 13.0
End of test speci	fication sheet
2a 2. 0000 opco1	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 736 812

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -4K

: 0 421 815 256 Governer no.

Cust. part No. : 3921774

Customer-spec. information Customer : CDC Motor : 6CTA-A Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 120 Tolerance L/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.40 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

"NW after s.o.d. : 5.50 Tolerance : + 0.50

Check

: **←** 0.75 tolerance °NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

4	•
Rack travel in mm : 12.35	- Rated speed rpm : 354
Tolerance mm : + 0.05	guide sleeve
	travel mm : 1.95
Del. quantity	Tolerance mm : + 0.25
cm3/1000 strokes : 148.5	
	- Rated speed rpm : 404
Tolerance	- guide sleeve
cm $3/1000$ strokes : \leftarrow 1.0	travel mm : 2.60
	Tolerance mm : +- 0.25
Check tolerance	•
cm3/1000s. : + 4.0	- Rated speed rpm : 490
	guide sleeve
Spreed +	travel mm : 3.89
- <u>-</u> ,	Tolerance mm : +- 0.25
Tolerance +	·
cm3/1000 strokes : 5.0	Rated speed rpm : 1630
	guide sleeve
Check tolerance	travel mm : 13.50
cm3/1000s. : 9.0 +	Tolerance mm : + 0.50
	•
†	CHINE CLEENE DOCKTION
Rated speed rpm : 350	- GUIDE SLEEVE POSITION
Rated speed rpm . 550	•
Rack travel in mm: 5.50	- control lever
Tolerance mm : + 0.10	position degree : - 1
Del. quantity	Rated speed rpm : 1260
cm3/1000 strokes : 30.0	. Adved speed (piii : 1200
Tolerance	Rack travel in mm : 16.50
cm3/1000 strokes : +- 3.0	Tolerance mm : +- 1.30
Check tolerance	- Total arice limit . 1.30
cm3/1000s. : +- 5.0	
Spreed	- FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	-
cm3/1000 strokes : 8.0	- Rated speed rpm : 1200
Check tolerance	- Aneroid pressure
cm3/1000s. : 12.0	- hPa : 1200
4	Del. quantity
	- cm3/1000 strokes : 148.5
(B) SETTING OF INJECTION PUMP	- Tolerance
WITH GOVERNOR	cm3/1000 strokes : + 1.0
-	· Check tolerance
	cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAVEL	- Spreed
+	Tolerance
Rated speed rpm : 1268	cm3/1000 strokes : 5.0
guide sleeve	Check tolerance
travel mm : 9.68 +	cm3/1000s. : 9.0
Tolerance mm : + 0.25 +	•
Dated arrest may 1750	
Rated speed rpm : 350	CONTROL LEVED
guide sleeve	CONTROL LEVER
travel mm : 2.04 + Tolerance mm : + 0.25 +	ontrol lovon
Tolerance mm : \leftarrow 0.25	control lever position degree : 119.0
Rated speed rpm : 836	tolerance degree : +- 4.0
guide sleeve	toterance degree . — 4.0
travel mm : 6.77	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 11.30
TOCOL GIFTON THE TOTAL OF THE T	TOO GIGGO INTO THE PERSON

Rated speed rpm : 1250 +	Rated speed rpm : 1200
Tolerance 1/min : + 5	Proceure has 1200
Total Bridge Walling	Pressure hPa : 1200
rack travel mm : 4.00	rack travel mm : 12.35 Tolerance mm : +- 0.05
Detect on and many a 1790	Tolerance mm : +- 0.05
Rated speed rpm : 1380	2.1
Tolerance 1/min : + 15	Rated speed rpm : 1200
†	Pressure hPa : -
rack travel mm : 0.50	rack travel mm : 7.90
Tolerance mm : + 0.50	Tolerance mm : +- 0.20
Rated speed rpm : 1500	
1	MEASUREMENT
1	
1	Rated speed rpm : 1200
<u> </u>	114 CC
LOW IDLE	Pressure hPa : 575
CON IVEC	nock thought me 11/0
Ţ	rack travel mm : 11.40 Tolerance mm : +- 0.20
The second secon	Toterance mm : += 0.20
control lever	Dansaura
position degree : 65.0	Pressure hPa : 225
tolerance degree : +- 4.0	rack travel mm : 8.95
†	Tolerance mm : +- 0.05
Control lever difference	
Grad : 54.0 +	We will be a second of the sec
tolerance degree : + 6.0 +	Start interlock
 	
Setting point w/out bumper spring +	Rated speed rpm :> 100
1	Rated speed rpm : < 290
Rated speed rpm : 275	
1	Check
CRT mm min. :> 7.20	speed 1/min :> 80
1	Check
Testing:	speed 1/min : < 300
restrig.	speed Milim : < 300
Dated small mm . 750	
Rated speed rpm : 350 + rack travel mm : 5.50 +	FUEL DELTUEDY DIAGRETEDIOTICO
rack travel mm : 5.50 + Tolerance mm : + 0.10 +	FUEL DELIVERY CHARACTERISTICS
Tolerance mm : + 0.10	
	
Rated speed rpm : 425	Aneroid pressure
+	hPa : 1200
	Rated speed rpm : 650
TORQUE CONTROL +	Del. quantity
Rated speed rpm : 1200	cm3/1000 strokes : 154.0
rack travel mm : 12.35	Tolerance
Tolerance mm : + 0.05	cm3/1000 strokes : +- 3.0
<u> </u>	Check tolerance
Rated speed rpm : 650	cm3/1000s. : +- 6.0
rack travel mm : 11.10	Spreed
Tolerance mm : + 0.20	Tolerance
TOTEL WILL THE D.SU	
Dated aread area	cm3/1000 strokes : 8.0
Rated speed rpm : 550	Check tolerance
rack travel mm : 11.00	cm3/1000s. : 12.0
Tolerance mm : \leftarrow 0.20 $+$	
†	
+	Aneroid pressure
	hPa : -
ANEROID/ALTITUDE +	
ANEROID/ALTITUDE COMPENSATOR TEST	Rated speed rpm : 500
1	Rated speed rpm : 500
1	Rated speed rpm : 500 Del. quantity
COMPENSATOR TEST	Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 88.5
	Rated speed rpm : 500 Del. quantity

Check tolerance : - 4.0 cm3/10009.

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 11.20
Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

: +- 25.0 cm3/1000s.

LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 5.50 Tolerance mm : + 0.10 Del quantity cm3/1000 strokes : 30.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

: +- 5.0 cm3/1000s.

Spreed

Tolerance

8.0 cm3/1000 strokes :

Check tolerance

cm3/1000s.12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 736 813

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1100PA964

: -5K

Governer no. : 0 421 815 257

Cust. part No. : 3921772

Customer—spec. information
Customer : CDC
Motor : 6CTA-A
Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 4.40 Tolerance mm : +- 0.05 Check

tolerance mm : + 0.10

Rack travel in mm : 10.50Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55

Tolerance mm : +- (0.05 +	guide sleeve travel mm : 5.30	
Del. quantity cm3/1000 strokes : 18	37.5	Tolerance mm : +- 0.20	
Tolerance cm3/1000 strokes : +-	1.0	Rated speed rpm : 1200 guide sleeve travel mm : 9.80	
Check tolerance	+	Tolerance mm : +- 0.20	
Spreed	 ‡	GUIDE SLEEVE POSITION	
Talamana	+	and all laves	
Tolerance cm3/1000 strokes :	5.0	control lever position degree : - 1	
Check tolerance cm3/1000S. :	9.0	FULL LOAD DELIVERY AT FULL LOAD ST	 ГОР
		Rated speed rpm : 1100 Aneroid pressure	
Rated speed rpm : 35	50	hPa : 1500	
Rack travel in mm : 5	5 60	Del. quantity cm3/1000 strokes : 187.5	
Tolerance mm : + 0		Tolerance	
Del. quantity	 	cm3/1000 strokes : +- 1.0	
cm3/1000 strokes : 3 Tolerance	30.0	Check tolerance cm3/1000s. : +- 4.0	
	3.0	Spreed 4.0	
Check tolerance	+	Tolerance	
	5.0	cm3/1000 strokes : 5.0	
Spreed Tolerance	‡	Check tolerance cm3/1000s. : 9.0	
cm3/1000 strokes :	3.0	. ,	
Check tolerance	†		
cm3/1000s. : 1	12.0	CONTROL LEVER	
(B) SETTING OF INJECTION	PUMP	control lever	
WITH GOVERNOR	+	position degree : 118.0	
		tolerance degree : +- 4.0	
GUIDE SLEEVE TRAVEL	Ī	RATED SPEED	
	+	rack travel mm : 13.50	
Rated speed rpm : 100 guide sleeve	n ļ	Rated speed rpm : 1150 Tolerance 1/min : +- 5	
	3.20	Toterance Training: +- 3	
Tolerance mm : +- 0		rack travel mm : 4.00	
27	+	Rated speed rpm : 1305	
Rated speed rpm : 35 guide sleeve) Î	Tolerance 1/min : +- 15	
	1.90	rack travel mm : 0.50	
Tolerance mm : + C		Tolerance mm : +- 0.50	
Rated speed rpm : 45	50	Rated speed rpm : 1400	
	3.30		
	0.20		
Rated speed rpm : 60	00 ‡	FOM IDEE	

control lever position degree tolerance degree	: 67.0 : +- 4.0	† † †	Pressure hPa rack travel mm Tolerance mm	: 10.15
Control lever dif Grad	: 51.0	Ī	Start interlock	
tolerance degree Setting point w/o		‡	Rated speed rpm Rated speed rpm	
Rated speed rpm	, , ,	+	Check speed 1/min	: > 80
CRT mm min.	: > 7.20	† †	Check speed 1/min	: < 300
Testing:		Ţ	FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm rack travel mm	: 5.60	‡		
Tolerance mm Rated speed rpm		‡	Aneroid pressure hPa Rated speed rpm	: 1500 : 650
TORQUE CONTROL	 	 ‡	Del. quantity cm3/1000 strokes Tolerance	
Rated speed rpm rack travel mm	: 14.55	Ī	cm3/1000 strokes Check tolerance	: +- 3.0
Tolerance mm		+	cm3/1000s. Spreed	: +- 6.0
Rated speed rpm rack travel mm Tolerance mm	: 13.60	† † +	Tolerance cm3/1000 strokes Check tolerance	
Pated speed nom	. 560	‡	cm3/1000s.	
rack travel mm Tolerance mm	: 13.10 : + 0.20	† + +	Aneroid pressure hPa	: -
ANEROID/ALTITUDE		+	Rated speed rpm Del quantity	
COMPENSATOR TEST		‡	cm3/1000 strokes Tolerance cm3/1000 strokes	
SETTING		+	Check tolerance cm3/1000s.	: +- 4.0
Rated speed rpm Pressure hPa	: 1160 : 1500	‡		
Rated speed rpm Pressure hPa	: 1100	Ī	STARTING FUEL DEL	IVERY
rack travel mm Tolerance mm		}	Rated speed rpm rack travel mm	: 11.30
MEASUREMENT		Ī	Tolerance mm Del. quantity cm3/1000 strokes	
Rated speed rpm		‡	Tolerance cm3/1000 strokes	
Pressure hPa rack travel mm Tolerance mm		† † †	Check tolerance cm3/1000s.	: +- 25.0

rack travel mm Tolerance mm	: 10.15 : +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 290
Check speed 1/min	: > 80
Check speed 1/min	: < 300
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: 1500
Rated speed rpm Del. quantity	: 650
cm3/1000 strokes Tolerance	: 203.5
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s. Spreed	: + 6.0
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Aneroid pressure	·
hPa Rated speed rpm	: - : 500
Del quantity	
cm3/1000 strokes Tolerance	: 93.0
cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
rack travel mm Tolerance mm	: 11.30 : +- 0.50
Del. quantity	F
cm3/1000 strokes	: 155.0
cm3/1000 strokes Tolerance	
cm3/1000 strokes	: 155.0 : + 20.0

LOW IDLE

Rated speed rpm	:	350	
Rack travel in mm Tolerance mm Del. quantity	: : +-	5.60 0.10	
cm3/1000 strokes Tolerance	:	30.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s. Spreed	: +-	5.0	
Tolerance		۰ ۵	
cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 736 814

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -6K

: 0 421 815 258 Governer no.

Cust. part No. : 3921775

Customer-spec. information Customer : CDC Motor : 6CTA-A Power KW : 187.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 120 Tolerance L/h : + 5.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : \leftarrow 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 4.40 Tolerance mm : + 0.05 Check

tolerance mm : ← 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-50-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50 : ← 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

1200 Rated speed rpm :

Rack travel in mm : 14.55 Tolerance mm : + 0.05 Del. quantity	Check tolerance cm3/1000s. : 9.0
cm3/1000 strokes : 184.0	CONTROL LEVER
Tolerance - cm3/1000 strokes : + 1.0 -	control lever position degree : 66.0 tolerance degree : +- 4.0
Check tolerance cm3/1000s. : + 4.0	- RATED SPEED - rack travel mm : 13.50
Spreed	Rated speed rpm : 1250 Tolerance 1/min : + 5
Tolerance - cm3/1000 strokes : 5.0 -	- rack travel mm : 4.00 - Rated speed rpm : 1410
Check tolerance - cm3/1000s. : 9.0 -	Tolerance 1/min : +- 15
	- rack travel mm : 0.50 - Tolerance mm : +- 0.50 - Rated speed rpm : 1500
Rated speed rpm : 350 -	
Rack travel in mm : 5.40 - Tolerance mm : + 0.10 -	
Del. quantity cm3/1000 strokes : 30.0	- LOW IDLE
Tolerance - cm3/1000 strokes : +- 3.0 - Check tolerance	control lever position degree : 15.0
cm3/1000s. : +- 5.0 Spreed	tolerance degree : +- 4.0
Tolerance - 8.0 - Tolerance -	Setting point w/out bumper spring
Check tolerance - cm3/1000s. : 12.0 -	- Rated speed rpm : 275
-	- CRT num min. : > 7.20
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Testing:
	- Rated speed rpm : 350 - rack travel mm : 5.40
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance mm : +- 0.10
Rated speed rpm : 1200 -	- Rated speed rpm : 425
Aneroid pressure hPa : 1200	TORQUE CONTROL
Del. quantity - cm3/1000 strokes : 184.0 -	Rated speed rpm : 1200 rack travel mm : 14.55
Tolerance cm3/1000 strokes : + 1.0	- Tolerance mm : + 0.05
Check tolerance	- Rated speed rpm : 650
cm3/1000s. : +- 4.0 Spreed Tolerance	- rack travel mm : 11.50 - Tolerance mm : +- 0.20
cm3/1000 strokes : 5.0	

ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1200 : 1200 : 14.55 : ← 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1200 : - : 7.70 : + 0.20
MEASUREMENT	
Rated speed rpm	: 1200
Fressure hPa rack travel mm Tolerance mm	: 860 : 13.40 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 320 : 9.45 : ← 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 290
Check speed 1/min Check	: > 80
speed 1/min	: < 300
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1200 : 650
Del. quantity cm3/1000 strokes	: 167.5
Tolerance cm3/1000 strokes	: 3.0
Check tolerance cm3/1000S. Spreed Tolerance	: + 6.0
cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0

Aneroid pressure hPa	:	-	
Rated speed rpm Del. quantity	:	500	
cm3/1000 strokes Tolerance	:	88.5	
cm3/1000 strokes Check tolerance	: +-	2.0	
cm3/1000s.	: +-	4.0	
STARTING FUEL DELI	VERY		
Rated speed rpm	:	100	
rack travel mm Tolerance mm	: : +-	11.40	
Del. quantity cm3/1000 strokes		155.0	
Tolerance			
cm3/1000 strokes Check tolerance	: +-	20.0	
cm3/1000s.	: +-	25.0	
LOW IDLE		·	
Rated speed rpm	:	350	
Rack travel in mm Tolerance mm	: : +-	5.40 0.10	
Del. quantity cm3/1000 strokes	:	30.0	
Tolerance cm3/1000 strokes	: +-	3.0	
Check tolerance cm3/1000S. Spreed	: +-	5.0	
Tolerance cm3/1000 strokes	:	8.0	
Check tolerance cm3/1000S.	•	12.0	
	•	0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 736 815

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1000PA964

: -7K

Governer no. : 0 421 815 259

Cust. part No. : 3921773

Customer—spec. information Customer : CDC Motor : 6CTA-A Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke nm : 4.40 Tolerance mm : +- 0.05 Check

talana

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm: + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance "NW : +- 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50 Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

.___

Rack travel in mm : 15.85 Tolerance mm : +- 0.05

Del quantity cm3/1000 strokes : 218.0	+ Toleranice num : → 0.20
Tolerance cm3/1000 strokes : +- 1.0	+ Rated speed rpm : 1150 + guide sleeve + travel mm : 10.00
Check tolerance	Tolerance mm : +- 0.20
cm3/1000s. : + 4.0 Spreed	GUIDE SLEEVE POSITION
opi eed	Ţ
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1
Check tolerance cm3/1000s. : 9.0	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 900
	+ Aneroid pressure
Rated speed rpm : 350	+ hPa : 1500
Rack travel in mm : 5.70	+ Del. quantity + cm3/1000 strokes : 218.0
Tolerance mm : +- 0.10	+ Tolerance
Del. quantity	+ cm3/1000 strokes : +- 1.0
cm3/1000 strokes : 30.0	+ Check tolerance
Tolerance cm3/1000 strokes : +- 3.0	+ cm3/1000s. : +- 4.0 + Spreed
Check tolerance	Tolerance
cm3/1000s. : $+$ 5.0	- cm3/1000 strokes : 5.0
Spreed	- Check tolerance
Tolerance cm3/1000 strokes : 8.0	+ cm3/1000s. : 9.0
Check tolerance	<u> </u>
cm3/1000s. : 12.0	
	CONTROL LEVER
(D) SETTING OF TALLECTION DUMP	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	<pre>+ control lever + position degree : 118.0</pre>
WEITH GOVERNOON	tolerance degree : +- 4.0
	+
GUIDE SLEEVE TRAVEL	+ RATED SPEED
Rated speed rpm : 1000	+ rack travel mm : 14.30 + Rated speed rpm : 1055
guide sleave	Tolerance 1/min : + 5
travel mm : 8.50	+
Tolerance mm : ← 0.10	+ rack travel mm : 4.00
Rated speed rpm : 350	+ Rated speed rpm : 1220 + Tolerance 1/min : +- 15
guide sleeve	+
travel mm : 1.70	+ rack travel mm : 0.50
Tolerance mm : + 0.10	+ Tolerance mm : + 0.50
Rated speed rpm : 450	Rated speed rpm : 1300
guide sleeve	+
travel mm : 3.20	+
Tolerance mm : \leftarrow 0.20	+ LOW IDLE
Rated speed rpm : 600	T LOW TOLE
guide sleeve	+
travel mm : 5.40	+

		+ Tolerance mm	: +- 0.20
control lever position degree tolerance degree	: 67.0 : + 4.0	Pressure hPa rack travel mm Tolerance mm	: 335 : 10.15
Control lever dif	ference : 51.0	+	
Grad tolerance degree	: ← 4.0	Start interlock	
Setting point w/o	out bumper spring	Rated speed rpm Rated speed rpm	: > 100 : < 290
Rated speed rpm	: 275	+	. \ 290
CRT mm min.	: > 7.20	+ Check + speed 1/min + Check	: > 80
Testing:		speed 1/min	: < 300
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.70 : + 0.10	FUEL DELIVERY CHA	ARACTERISTICS
Rated speed rpm	: 425	+ Aneroid pressure + hPa + Rated speed rpm	: 1500 : 650
TORQUE CONTROL Rated speed rpm	: 900	Del. quantity cm3/1000 strokes	
rack travel mm Tolerance mm	: 15.85 : + 0.05	Tolerance cm3/1000 strokes	: +- 3.0
Rated speed rpm rack travel mm Tolerance mm	: 650 : 14.20	+ Check tolerance + cm3/1000S. + Spreed	: + 6.0
		Tolerance cm3/1000 strokes	
Rated speed rpm rack travel mm Tolerance mm	: 15.40	- Check tolerance - cm3/1000s.	
ANEROID/ALTITUDE		Aneroid pressure	• _
COMPENSATOR TEST		Rated speed rpm Del. quantity	500
SETTING		cm3/1000 strokes Tolerance	: 93.0
Rated speed rpm	: 900	+ cm3/1000 strokes + Check tolerance	: +- 2.0
Pressure hPa rack travel mm Tolerance mm	: 1500 : 15.85 : +- 0.05	- cm3/1000s. -	: +- 4.0
Rated speed rpm	: 900	STARTING FUEL DEL	.IVERY
Pressure hPa rack travel mm Tolerance mm	: - : 8.30 : +- 0.20	Rated speed rpm rack travel mm	: 11.40
MEASUREMENT		Tolerance mm Del. quantity	: +- 0.50
Rated speed rpm	: 900	+ cm3/1000 strokes + Tolerance	
Pressure hPa rack travel mm	: 845 : 13.80	- cm3/1000 strokes - Check tolerance - cm3/1000s.	: +- 20.0 : +- 25.0

LOW IDLE

Rated speed rpm : 350 Rack travel in mm: 5.70 : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : \leftarrow 3.0 Check tolerance cm3/1000s.: **←** 5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 736 816

Injection pump

Pump designation : PES6P110A120RS7214 EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -8K

Governer no. : 0 421 815 264

Cust. part No. : 3921770

Customer-spec. information Customer : CDC Motor : 6CTA-A Power KW : 213.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 120 Tolerance L/h : + 5.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05
Check

LIIECK

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

*NW after s.o.d. : 6.00

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

1100

Rack travel in mm: 14.75 Tolerance mm: +- 0.05	Aneroid pressure hPa : 1200 Del. quantity
Del. quantity cm3/1000 strokes : 192.5	cm3/1000 strokes : 192.5 Tolerance cm3/1000 strokes : +- 1.0
Tolerance	Check tolerance cm3/1000s. : +- 4.0 Spreed
Check tolerance cm3/1000s. : + 4.0	Tolerance cm3/1000 strokes : 5.0 Check tolerance
Spreed	cm3/1000s. : 9.0
+	
Tolerance cm3/1000 strokes : 5.0	CONTROL LEVER
Check tolerance cm3/1000s. : 9.0	control lever position degree : 122.0 tolerance degree : +- 4.0
+	
0ated - 250	RATED SPEED
Rated speed rpm : 350	rack travel mm : 13.20 Rated speed rpm : 1250
Rack travel in mm: 5.70	Tolerance 1/min : + 5
Tolerance mm : + 0.10	Total discontinuation of the second
Del. quartity	rack travel mm : 4.00
cm3/1000 strokes : 30.0 +	Rated speed rpm : 1415
Tolerance	Tolerance 1/min : + 15
cm3/1000 strokes : + 3.0	made Americal and a Co. CO.
Check tolerance + 5.0 + 5.0	rack travel mm : 0.50 Tolerance mm : - 0.50
Spreed	Rated speed rpm : 1500
Tolerance	Nated Speed Tollin . 1500
cm3/1000 strokes : 8.0	
Check tolerance	
cm3/1000s. : 12.0 +	
†	LOW IDLE
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	control lever
#2111 GOVENNON	position degree : 67.0
+	tolerance degree : - 4.0
GUIDE SLEEVE POSITION	Control lever difference
†	Grad : 55.0 tolerance degree : +- 6.0
control lever	toterance degree o.o
position degree : -1	Setting point w/out bumper spring
Rated speed rpm : 1260	
+	Rated speed rpm : 275
Rack travel in mm: 16.50	OPT
Tolerance mm : + 1.30	CRT mm min. : > 7.20
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	reseme.
+	Rated speed rpm : 350
Rated speed rpm : 1100	rack travel mm : 5.70
+	Tolerance mm : +- 0.10

Rated speed rpm	: 425	Aneroid pressure
		+ hPa : 1200
		Rated speed rpm : 650
TORQUE CONTROL		+ Del. quantity
Rated speed rpm	: 1100	+ cm3/1000 strokes : 184.0
rack travel mm	: 14.75	+ Tolerance
Tolerance mm	: +- 0.05	+ cm3/1000 strokes : $+$ 3.0
· - 20/ 100 HAN	0.02	Check tolerance
Rated speed rpm	. 450	
nateu speed ripm	. 42.00	$+ \text{ cm}^3/1000\text{s}. : +- 6.0$
rack travel mm		+ Spreed
Tolerance mm	: +- 0.20	+ Tolerance
		+ cm3/1000 strokes : 8.0
Rated speed rpm		+ Check tolerance
rack travel mm		+ cm3/1000s. : 12.0
Tolerance mm	: + 0.10	1
20, 100 11811	. 0.10	
		Aneroid pressure
ANEROID/ALTITUDE		
COMPENSATOR TEST		+ hPa : - + Rated speed rpm : 500
COULENSWICK 1F91		1 - 1 - 1 - 1 - 1 - 1
		+ Del. quantity
		† cm3/1000 strokes : 92.0
SETTING		+ Tolerance
		+ cm3/1000 strokes : +- 2.0
Rated speed rpm	: 1100	+ Check tolerance
Pressure hPa		+ cm3/1000s. : + 4.0
rack travel mm	: 14.75	1 10000.
Tolerance inm	: + 0.05	\perp
INCELATIVE IM	0.05	I
Pated speed non	. 1100	STABILING ENEL DELIVERY
Rated speed rpm	. 1100	STARTING FUEL DELIVERY
Pressure hPa	: -	† <u> </u>
rack travel mm		+ Rated speed rpm : 100
Tolerance mm	: ← 0.20	+ rack travel mm : 11.20
		+ Tolerance mm : +- 0.50
MEASUREMENT		+ Del. quantity
		+ cm3/1000 strokes : 155.0
Rated speed rpm	: 1100	Tolerance
wren sheen thin	. 1100	
F	705	+ cm3/1000 strokes : $+$ 20.0
Pressure hPa	: 785	+ Check tolerance
rack travel mm	: 13.00	+ cm3/1000s. : +- 25.0
Tolerance mm	: ← 0.20	+
		+
Pressure hPa	: 335	+
rack travel mm	: 9.65	
Tolerance mm	: +- 0.05	+ LOW IDLE
	. 0.05	
		Rated speed rpm : 350
Start interlock		
		+ Rack travel in mm: 5.70
Dated speed see	. > 100	
Rated speed rpm	: > 100	+ Tolerance mm : + 0.10
Rated speed rpm	: < 290	+ Del. quantity
		+ cm3/1000 strokes : 30.0
Check		+ Tolerance
speed 1/min	: > 80	+ cm3/1000 strokes : + 3.0
Check		+ Check tolerance
speed 1/min	. / 700	
SUMMO 1/MID	: < 300	$+ \text{ cm}^3/1000\text{s}. : + 5.0$
speed triiitt		+ Spreed
ppeca (/m//)		
FUEL DELIVERY CHA		Tolerance cm3/1000 strokes : 8.0

Check tolerance cm3/1000s.	:	12.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.11.97 : ISO 4113 Test oil

Combination No. : 0 401 848 821

Injection pump

Pump designation: PE8P120A920/5L83804

EP type number : 0 411 828 705

Governor

: RQV300...1000PA475 Governer design.

: -2

: D 421 813 949 Governer no.

Cust. part No. :

Customer-spec. information

Customer : IVECO-FIAT : 8285.22.004 Motor

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

40 temp. °C : + 2.0 Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

208.5 1.5 Tolerance bar

: 1 680 750 075 Test lines

Outside diameter : 8.0 x inside diameter: 2.5 : 1000 x Lenath mm

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

tolerance mm

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.55 : +- 0.05 Tolerance mm Check

: +- 0.10 Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-8-4-3-6 : - 5- 7- 2

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : +- 0.50

Check

tolerance "NW : +- 0.75

BASIC SETTING

Del. quantity cm3/1000 strokes : 186.0

Tolerance cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +-4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

9.0 cm3/1000s.

	+
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 5.30 Tolerance mm : +- 0.10	+ Rated speed rpm : 1000 + Aneroid pressure
Del. quantity cm3/1000 strokes : 24.0	+ hPa : 700 + Del. quantity
Tolerance cm3/1000 strokes : +- 3.0	cm3/1000 strokes : 186.0 Tolerance
Check tolerance	+ cm3/1000 strokes : +- 1.0
cm3/1000s. : ← 6.0 Spreed	+ Check tolerance + cm3/1000s. : + 4.0
Tolerance cm3/1000 strokes : 8.0	+ Spreed + Tolerance
Check tolerance cm3/1000s. : 12.0	+ cm3/1000 strokes : 5.0 + Check tolerance
. 72.0	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	+
WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 115.0
Rated speed rpm : 700 guide sleeve	+ position degree : 115.0 + tolerance degree : + 4.0
travel mm : 5.50	+ RATED SPEED
Tolerance mm : ← 0.20	+ rack travel mm : 10.10 + Rated speed rpm : 1055
Rated speed rpm : 1055 guide sleeve	Tolerance 1/min : + 5
travel mm : 8.40 Tolerance mm : + 0.10	rack travel mm : 4.00 Rated speed rpm : 1145
Rated speed rpm : 300	→ Tolerance 1/min : ← 15 →
guide sleeve travel mm : 1.20	rack travel mm : 0.50 Tolerance mm : +- 0.50
Tolerance mm : + 0.20	Rated speed rpm : 1350
Rated speed rpm : 500 guide sleeve	
travel mm : 4.00	
Tolerance mm : +- 0.30	+ LOW IDLE
Rated speed rpm : 1350 guide sleeve	t control lever
travel mm : 11.50 Tolerance mm : + 0.50	position degree : 66.0 tolerance degree : + 4.0
roter ance unit	+
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
	Rated speed rpm : 100
control lever position degree : - 1	+ CRT mm min. :> 7.50
Rated speed rpm : 1170	Testing:
Rack travel in mm : 10.10 Tolerance mm : +- 1.30	Rated speed rpm : 300 rack travel mm : 5.30

Tolerance mm : ← 0.10

Rated speed rpm : 375

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

500 Rated speed rpm : 700 Pressure hPa : 11.15 rack travel mm : **←** 0.05 Tolerance mm

Rated speed rpm : 500 Pressure hPa 8.60 rack travel mm : : ← 0.10 Tolerance mm

MEASUREMENT

Rated speed rpm : 500

280 Pressure hPa rack travel mm 9.35 : +- 0.15 Tolerance mm

340 Pressure hPa 10.55 rack travel mm : +- 0.05 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 1000 Del quantity

cm3/1000 strokes : 138.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

4.0 cm3/1000s.

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 210.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s.: +- 14.0 LOW IDLE

Rated speed rpm : 300

5.30 Rack travel in mm : Tolerance mm : +- 0.10 Del. quantity

cm3/1000 strokes : 24.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. : +-6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 20.11.97 Test oil : ISO 4113

Combination No. : 0 401 876 803

Injection pump

Pump designation : PE6P110A320RS3266 EP type number : 0 411 816 777

Governor

Governer design. : RSV350...1250P0A578

Governer no. : 0 421 833 434

Cust. part No. : 866200-P06 v.10/97

Customer—spec. information Customer : PENTA Motor : TWD 630VE

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm): 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 110 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.45
Tolerance mm : + 0.05
Check

tolerance mm : \leftarrow 0.10

Rack travel in mm: 9.40 Tolerance mm: + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

tolerance "NW : \leftarrow 0.75

Barrel no. : 1

	1
	governor spring
BASIC SETTING	+ pre-tension
Rated speed rpm : 700	click setting x : 2.50
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 12.00 Tolerance mm : + 0.05	+ Rated speed rpm : 700
Total arce min	+ Rated speed rpm : 700 + Aneroid pressure
Del. quantity	+ hPa : 1200
cm3/1000 strokes : 133.0	+ Del. quantity + cm3/1000 strokes : 133.0
Tolerance	Tolerance
$cm3/1000$ strokes : \leftarrow 1.0	cm3/1000 strokes : +- 1.0
Check tolerance	+ Check tolerance + cm3/1000s. : +- 3.0
cm3/1000s. : +- 3.0	Spreed
	Tolerance
Spreed	+ cm3/1000 strokes : 5.0 + Check tolerance
Tolerance	= m3/1000s. : 8.0
cm3/1000 strokes : 5.0	†
Check tolerance	
cm3/1000s. : 8.0	CONTROL LEVER
	+ + control lever
	position degree : 48.0
Rated speed rpm : 350	tolerance degree : +- 4.0
Rack travel in mm : 5.50	t control lever
Tolerance mm : ← 0.10	position degree : 98.0
Del. quantity cm3/1000 strokes : 19.0	tolerance degree : + 4.0
Tolerance	T RATED SPEED
cm3/1000 strokes : +- 2.0	+ rack travel mm : 11.00
Check tolerance cm3/1000s. : +- 5.0	+ Rated speed rpm : 1280 + Tolerance 1/min : +- 5
Spreed	+ Tolerance 1/min : +- 5
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 5.0 Check tolerance	+ Rated speed rpm : 1320 + Tolerance 1/min : +- 15
cm3/1000s. : 8.0	+
	+ rack travel mm : 0.85 + Tolerance mm : +- 0.55
(B) SETTING OF INJECTION PUMP	+ Tolerance mm : +- 0.55 + Rated speed rpm : 1400
WITH GOVERNOR	+
	+ rack travel mm : 4.00 + Rated speed rpm : 1345
	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	+
	‡
control lever	ļ
position degree : - 3	+ LOW IDLE
Rated speed rpm : 800	<u></u>
Rack travel in mm : 0.50	control lever
Tolerance mm : +- 0.20	+ position degree : 70.0

	· + 40
tolerance degree	4.0
control lever position degree tolerance degree	: 20.0 : ← 4.0
Setting point w/c	out bumper spring
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.00 : + 0.10
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 5.50
rack travel mm Rated speed rpm Tolerance 1/min	: 480
TORQUE CONTROL	700
Rated speed rpm rack travel mm Tolerance mm	: 700 : 12.00 : +- 0.05
rack travel mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST	: 700 : 12.00 : +- 0.05
rack travel mm Tolerance mm ANEROID/ALTITUDE	: 12.00 : +- 0.05
rack travel mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa rack travel mm	: 12.00 : +- 0.05 : 500 : 1200 : 12.00
rack travel mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa rack travel mm Tolerance mm Rated speed rpm Pressure hPa rack travel mm	: 12.00 : +- 0.05 : 500 : 12.00 : +- 0.05 : 500 : - : 9.40
rack travel mm Tolerance mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa rack travel mm Tolerance mm Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 12.00 : +- 0.05 : 500 : 12.00 : +- 0.05 : 500 : - : 9.40
rack travel mm Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm Pressure hPa rack travel mm Tolerance mm Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT	: 12.00 : + 0.05 : 500 : 12.00 : + 0.05 : 500 : - : 9.40 : + 0.20

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
LOW IDLE	
Rated speed rpm	: 350
Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes	: +- 0.10
Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: + 2.0
	: +- 5.0
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.11.97 Test oil : ISO 4113

Combination No. : 0 402 046 234

Injection pump

Pump designation : PES6P110A820LS442 EP type number : 0 412 016 060

Governor

Governer design. : RQ300/1100PA327-5 Governer no. : 0 421 801 163

Cust. part No. :

Customer-spec. information Customer : MB-NFZ

Motor : 407 STEHEND

Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 110 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5 Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 1.5 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

BASIC SETTING

Del. quantity cm3/1000 strokes : 117.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.5

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

cm3/1000s : 8.0

Rated speed rpm : 300

Rack travel in mm : 6.10

Tolerance mm	: - 0.10 +	
Del. quantity cm3/1000 strokes Tolerance	: 15.0	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes Check tolerance	: ← 3.0	Rated speed rpm : 1100 Aneroid pressure
cm3/1000s. Spreed	: +- 5.5	hPa : - Del. quantity
Tolerance cm3/1000 strokes	: 4.0	cm3/1000 strokes : 117.0 Tolerance
Check tolerance cm3/1000s.	: 7.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 3.5
(B) SETTING OF IN	JECTION PUMP +	Spreed Tolerance
WITH GOVERNOR	+	cm3/1000 strokes : 4.0 Check tolerance
GUIDE SLEEVE TRAV	/EL +	cm3/1000s. : 8.0
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1153 : 7.63 : ← 0.15	RATED SPEED rack travel mm : 10.00 Rated speed rpm : 1145 Tolerance 1/min : + 5
Rated speed rpm guide sleeve travel mm Tolerance mm	: 300 : 1.87 : + 0.20	rack travel mm : 4.00 Rated speed rpm : 1190 Tolerance 1/min : +- 15
Rated speed rpm guide sleeve travel mm	: 1100 + : 7.00 + : + 0.10 +	rack travel mm : 1.00 Tolerance mm : +- 1.00 Rated speed rpm : 1300
Tolerance mm Rated speed rpm	+	
guide sleeve travel man	: 4.84	LOW IDLE
Tolerance mm	: ← 0.10	Setting point w/out bumper spring
Rated speed rpm guide sleeve	+	Rated speed rpm : 100
travel mm Tolerance mm	: 7.00 : + 0.10	CRT mm min. :> 7.50 Testing:
Rated speed rpm guide sleeve	: 1250	Rated speed rpm : 300
travel mm Tolerance mm	: 11.50 : + 0.50	rack travel mm : 6.10 Tolerance mm : +- 0.10
GUIDE SLEEVE POSI	TION	rack travel mm : 2.00 Rated speed rpm : 370 Tolerance 1/min : +- 20
control lever position degree Rated speed rpm		
Rack travel in mm Tolerance mm		FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa Rated speed rpm 600 Del. quantity cm3/1000 strokes : 95.0 Tolerance cm3/1000 strokes 2.0 Check tolerance cm3/1000s.5.0 Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance 9.0 cm3/1000s.STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : \leftarrow 10.0 Check tolerance cm3/1000s.: + - 14.0LOW IDLE Rated speed rpm : 300 Rack travel in mm : 6.10 : ← 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 15.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s.5.5 Spreed Tolerance 4.0 cm3/1000 strokes : Check tolerance cm3/1000s.7.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 20.11.97 : ISO 4113

Combination No. : 0 402 046 811

Injection pump

Pump designation : PES6P110A320RS3233 EP type number : 0 412 016 728

Governor

Governer design. : RQV275...1175PA833

: -4

Governer no.

: 0 421 813 762

Cust. part No. : CCEP 50900

Customer-spec. information

Customer : RENAULT V.I.

Motor

: MIDR 060226D

Power KW

: 166.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

173.5

Tolerance bar

: + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

G07

x inside diameter : 3.0 :

x length mm

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +-1.0

Prestroke mm 4.25

Tolerance mm : +- 0.05

Check

tolerance mm : + - 0.10

Rack travel in mm: 19.50

: +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance $^{\circ}NW$: + 0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance °NW : → 0.75

: 1 Barrel no.

CRT ZERO POSITION

Rack travel in mm : 13.55

Tolerance mm : + 0.05

		+ guide sleeve
		
BASIC SETTING		+ Tolerance mm : +- 0.20
Rated speed rpm	: 1175	Rated speed rpm : 450 guide sleeve
Del. quantity		travel mm : 3.20
cm3/1000 strokes	: 118.0	Tolerance mm : + 0.30
Tolerance cm3/1000 strokes	: ← 1.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s.	: + 3.5	control lever position degree : - 1
Spreed	***************************************	Rated speed rpm : 1430
Tolerance cm3/1000 strokes	: 4.0	Rack travel in mm : 13.50 Tolerance mm : + 1.30
Check tolerance cm3/1000s.	: 7.5	FULL LOAD DELIVERY AT FULL LOAD STOP
		Rated speed rpm : 1175
Rated speed rpm	: 275	+ Aneroid pressure + hPa : 1000
		+ Del. quantity
Rack travel in mm Tolerance mm		+ cm3/1000 strokes : 118.0 + Tolerance
Del. quantity		+ cm3/1000 strokes : +- 1.0
cm3/1000 strokes Tolerance	: 40.0	+ Check tolerance + cm3/1000s. : +- 3.5
cm3/1000 strokes	: ← 2.0	+ Spreed
Check tolerance		+ Tolerance
cm3/1000s.	: ← 5.5	+ cm3/1000 strokes : 4.0
Spreed		+ Check tolerance
Tolerance cm3/1000 strokes	: 4.5	+ cm3/1000s. : 7.5
Check tolerance		+
cm3/1000s.	: 7.5	CONTROL LEVER
(B) SETTING OF IN	VIECTION DUMD	t control lever
WITH GOVERNOR	MOTOLITON FOME	+ control lever + position degree : 117.0
WITH GOVERNOR		tolerance degree : + 4.0
GUIDE SLEEVE TRAN	/EL	RATED SPEED
		+ rack travel mm : -1.00
Rated speed rpm	: 1175	Rated speed rpm : 1245
guide sleeve	7 00	+ Tolerance 1/min : +- 5
travel mm	: 7.00	†
Tolerance mm	: +- 0.10	+ rack travel mm : -9.50
Rated speed rpm	: 250	+ Rated speed rpm : 1420 + Tolerance 1/min : +- 15
guide sleeve		+
travel mm	: 0.50	+ rack travel mm : -13.05
Tolerance mm	: ← 0.10	+ Tolerance mm : +- 0.55 + Rated speed rpm : 1550
Rated speed rpm	: 800	+

		∔ Check
LOW IDLE		- + speed 1/min : > 80
LOW IDLE		+ Check + speed 1/min : < 215
control lever	. 9/ 0	FUEL DEL TUEDO GUADACTERTOTA
position degree tolerance degree	: + 4.0	+ FUEL DELIVERY CHARACTERISTICS
Testing:		Aneroid pressure hPa : 1000
Rated speed rpm	: 275	Rated speed rpm : 700
ack travel mm olerance mm	: -7.90 : + 0.10	Del. quantity cm3/1000 strokes : 114.0
ated speed rpm	: 200	Tolerance cm3/1000 strokes : + 2.5 Check tolerance
CRT mm max.	: < -5.60	- cm3/1000s. : +- 5.5
lated speed rpm	: 300	
		+ Aneroid pressure - + hPa : -
FORQUE CONTROL	. 1175	Rated speed rpm : 500
Rated speed rpm	: 1175	+ Del. quantity + cm3/1000 strokes : 52.0
ated speed rpm	: 700	Tolerance cm3/1000 strokes : +- 1.0
		- Check tolerance
EROID/ALTITUDE MPENSATOR TEST		+ cm3/1000s. : +- 3.5
ETTING		STARTING FUEL DELIVERY
Rated speed rpm		Rated speed rpm : 100
ressure hPa	: 1000	+ Del. quantity + cm3/1000 strokes : 92.0
ared speed rpm		+ Tolerance
ressure hPa ack travel mm	: - : -3.80	+ cm3/1000 strokes : + 10.0 + Check tolerance
lerance mm	: + 0.30	cm3/1000s. : +- 14.0
ASUREMENT		<u> </u>
ated speed rpm	: 500	LOW IDLE
ressure hPa	: 440	+
ack travel mm olerance mm	: -0.90 : +- 0.20	+ Rated speed rpm : 275
		Rack travel in mm: -7.90
ressure hPa ack travel mm	: 200 : -2.85	+ Tolerance mm : +- 0.10 + Del. quantity
olerance mm		+ cm3/1000 strokes : 40.0
		+ Tolerance - + cm3/1000 strokes : +- 2.0
art interlock		+ Check tolerance
ted speed rpm	: > 100	+ cm3/1000s. : + 5.5 + Spreed
ated speed rpm		Tolerance cm3/1000 strokes : 4.5
		1 2 1000 001 01100 . 4.9

Check tolerance cm3/1000s.	:	7.5	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.97 Test oil : ISO 4113

Combination No. : 0 402 076 758

Injection pump

Pump designation : PES6P12OA72ORS3322 EP type number : 0 412 026 764

Governor

Governer design. : RSV650...1250P8A566

Governer no. : 0 421 833 415

Cust. part No. : 87801599

Customer-spec. information

Customer : FNH-GEOTECH

Power KW : 164.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : +- 0.05
Check
tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.05 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 131.0

Tolerance cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : + 6.0	Check tolerance cm3/1000s. : +- 6.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : 5.0	Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVER
Rated speed rpm : 650	<pre>control lever position degree : 112.0 tolerance degree : +- 4.0</pre>
Rack travel in mm : 4.40 Tolerance mm : + 0.10 Del. quantity	RATED SPEED
cm3/1000 strokes : 19.0 +	Rated speed rpm : 1330 Tolerance 1/min : +- 15
cm3/1000 strokes : + 3.0 + Check tolerance cm3/1000s. : + 6.0 +	ASSEMBLY GOVERNOR SETTING
Spreed Tolerance cm3/1000 strokes : 8.0	Rated speed rpm : 1293 rack travel mm : 9.05
Check tolerance cm3/1000s. : 12.0	Rated speed rpm : 1325 Tolerance 1/min : +- 5
(B) OFTING OF INJECTION DUMP	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR +	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1500
GUIDE SLEEVE POSITION	Rated speed rpm : 1294 rack travel mm : 9.05
control lever position degree : - 3 Rated speed rpm : 800	Rated speed rpm : 1326 Tolerance 1/min : +- 5 rack travel mm : 4.00
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	rack travel mm : 0.85 Tolerance mm : +- 0.55
governor spring pre-tension click setting x : 1.75	Rated speed rpm : 1295 rack travel mm : 9.05
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 1327 Tolerance 1/min : +- 5 rack travel mm : 4.00
Rated speed rpm : 1250 Aneroid pressure hPa : 1000	rack travel mm : 0.85 Tolerance mm : +- 0.55
Del. quantity cm3/1000 strokes : 131.0 + Tolerance +	Rated speed rpm : 1296
cm3/1000 strokes : +- 1.0 +	rack travel mm : 9.05

Rated speed rpm : 1328 Tolerance 1/min : + 5 rack travel mm : 4.00	rack travel mm : 10.60 Tolerance mm : + 0.10
rack travel mm : 0.85 Tolerance mm : + 0.55	Rated speed rpm : 1160 rack travel mm : 10.35 Tolerance mm : +- 0.10
Rated speed rpm : 1297 rack travel mm : 9.05	Rated speed rpm : 700 rack travel mm : 10.60 Tolerance mm : + 0.10
Rated speed rpm : 1329 Tolerance 1/min : + 5 rack travel mm : 4.00	ANEROID/ALTITUDE COMPENSATOR TEST
rack travel mm : 0.85 Tolerance mm : + 0.55	SETTING
Rated speed rpm : 1298 rack travel mm : 9.05	Rated speed rpm : 500 Pressure hPa : 1000 rack travel mm : 10.60 Tolerance mm : +- 0.10
Rated speed rpm : 1330 Tolerance 1/min : +- 5 rack travel mm : 4.00 rack travel mm : 0.85	Rated speed rpm : 500 Pressure hPa : - rack travel mm : 7.60 Toierance mm : + 0.10
Tolerance mm : +- 0.55	MEASUREMENT
LOW IDLE	Rated speed rpm : 500
control lever position degree : 85.0 tolerance degree : + 4.0	Pressure hPa : 560 rack travel mm : 9.80 Tolerance mm : +- 0.05
Setting point w/out bumper spring	Start interlock
Rated speed rpm : 650 + rack travel mm : 3.90 + Tolerance mm : + 0.10	Rated speed rpm : > 100 Check
Testing:	speed 1/min :> 80
Rated speed rpm : 650 rack travel mm : 4.40 Tolerance mm : + 0.10	FUEL DELIVERY CHARACTERISTICS
rack travel mm : 2.00 Rated speed rpm : 770 Tolerance 1/min : + 50	Aneroid pressure hPa : 1000 Rated speed rpm : 900 Del. quantity cm3/1000 strokes : 144.5
TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 10.05 Tolerance mm : + 0.05	Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0

Rated speed rpm : 900

Aneroid pressure

Rated speed rpm : 500

Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 83.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50

Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 215.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 650

Rack travel in mm : 4.40 Tolerance mm : + 0.10

Tolerance mm
Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : \leftarrow 3.0

Check tolerance

cm3/1000s. : +- 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.97 : ISO 4113 Test oil

Combination No. : 0 402 076 759

Injection pump

Pump designation : PES6P120A720RS3322 EP type number : 0 412 026 764

Governor

Governer design. : RSV650...1250P8A567

Governer no. : 0 421 833 416

Cust. part No. : 87801592

Customer-spec. information

Customer : FNH-GEOTECH Power KW : 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

x Length mm : 600

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 : +- 1.50 Tolerance mm

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

: + 0.50 Tolerance

Check

tolerance °NW : + 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.65

Del. quantity tom3/1000 strokes : 157.5	Aneroid pressure hPa : 1000
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 157.5 Tolerance
Check tolerance cm3/1000s. : + 6.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 6.0
Spreed	Spreed Tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Check tolerance	
cm3/1000s. : 9.0 +	CONTROL LEVER
Rated speed rpm : 650	control lever position degree : 109.0 tolerance degree : +- 4.0
Rack travel in mm : 4.80 + Tolerance mm : + 0.10 + Del. quantity	RATED SPEED
cm3/1000 strokes : 21.0 + Tolerance +	Rated speed rpm : 1330 Tolerance 1/min : +- 15
cm3/1000 strokes : + 3.0	ASSEMBLY GOVERNOR SETTING
Spreed + Tolerance	Rated speed rpm : 1293 rack travel mm : 10.65
<pre>cm3/1000 strokes : 8.0 + Check tolerance</pre>	Rated speed rpm : 1325 Tolerance 1/min : +- 5
(D) CETTING OF THISCITION DUMP	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR +	rack travel mm: : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1500
GUIDE SLEEVE POSITION	Rated speed rpm : 1294 rack travel mm : 10.65
control lever position degree : -3 Rated speed rpm : 800	Rated speed rpm : 1326 Folerance 1/min : +- 5 rack travel mm : 4.00
Rack travel in mm: 0.50 Tolerance mm : + 0.20	rack travel mm : 0.85 Tolerance mm : +- 0.55
governor spring pre-tension click setting x : 3.00	Rated speed rpm : 1295 rack travel mm : 10.65
FULL LOAD DELIVERY AT FULL LCAD STOP	Rated speed rpm : 1327 Tolerance 1/min : +- 5 rack travel mm : 4.00
Rated speed rpm : 1250	rack travel mm : 0.85

Tolerance mm : + 0.55	†
Rated speed rpm : 1296 rack travel mm : 10.65	TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 11.65 Tolerance mm : +- 0.10
Rated speed rpm : 1328 Tolerance 1/min : + 5 rack travel mm : 4.00	Rated speed rpm : 900 rack travel mm : 12.10 Tolerance mm : +- 0.10
rack travel mm : 0.85 Tolerance mm : + 0.55	Rated speed rpm : 700 rack travel mm : 12.15 Tolerance mm : +- 0.15
Rated speed rpm : 1297 rack travel mm : 10.65	+
Rated speed rpm : 1329 Tolerance 1/min : +- 5 rack travel mm : 4.00	+ ANEROID/ALTITUDE + COMPENSATOR TEST +
rack travel mm : 0.85 Tolerance mm : + 0.55	SETTING Rated speed rpm : 500 Pressure hPa : 1000
Rated speed rpm : 1298 rack travel mm : 10.65	rack travel mm : 12.10 Tolerance mm : +- 0.10
Rated speed rpm : 1330 Tolerance 1/min : + 5 rack travel mm : 4.00	+ Rated speed rpm : 500 + Pressure hPa : - + rack travel mm : 7.90 + Tolerance mm : + 0.10
rack travel mm : 0.85 Tolerance mm : + 0.55	MEASUREMENT
LOW IDLE	Rated speed rpm : 500 Pressure hPa : 490 rack travel mm : 11.05 Tolerance mm : +- 0.05
position degree : 79.0 tolerance degree : + 4.0	Start interlock
Setting point w/out bumper spr	ing Rated speed rpm : > 100
Rated speed rpm : 650 rack travel mm : 4.30 Tolerance mm : + 0.10	Check speed 1/min : > 80
Testing:	FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 650 rack travel mm : 4.80 Tolerance mm : + 0.10	Aneroid pressure hPa : 1000 Rated speed rpm : 900
rack travel mm : 2.00 Rated speed rpm : 770 Tolerance 1/min : + 50	Del. quantity cm3/1000 strokes : 176.0 Tolerance cm3/1000 strokes : +- 3.0

Check tolerance : +- 6.0 cm3/1000S.Aneroid pressure Rated speed rpm 500 Del. quantity cm3/1000 strokes : 84.5 Tolerance cm3/1000 strokes : +-Check tolerance cm3/1000s.4.0 STARTING FUEL DELIVERY Rated speed rpm 100 20.50 rack travel mm Tolerance mm : +- 0.50 Del. quantity cm3/1000 strokes : 210.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s.: + 19.0LOW IDLE Rated speed rpm : 650 Rack travel in mm: 4.80 Tolerance nm : + 0.10 Del. quantity 21.0 cm3/1000 strokes : Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. 12.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 26.11.97 : ISO 4113

combination No. : 0 402 076 762

Injection pump

Pump designation : PES6P12OA72ORS3322 EP type number : 0 412 026 764

Governor

Governer design. : RSV650...1250P8A567

: -1

Governer no.

: 0 421 833 422

Cust. part No. : 87801597

Customer-spec. information

Customer

: FNH-GEOTECH

Power KW

: 179.0

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity

min. L/h :

105

Tolerance l/h: + 20.0

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

G19

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm 3.60 : + 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50

Tolerance mm: +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance 'NW : +- 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

Barrel no.

1 : :

BASIC SETTING

Rack travel in mm Tolerance mm	: 10.70 : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1250
Del. quantity cm3/1000 strokes	: 137.5	Aneroid pressure hPa : 1500 Del. quantity
Tolerance cm3/1000 strokes	: + 1.0	cm3/1000 strokes : 137.5 Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s.	: + 6.0	Check tolerance cm3/1000s. : +- 6.0 Spreed
Spreed	T	Tolerance
Tolerance cm3/1000 strokes	: 5.0	<pre>cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0</pre>
Check tolerance cm3/1000s.	: 9.0	
		CONTROL LEVER
Rated speed rpm	: 650	control lever position degree : 111.0 tolerance degree : + 4.0
Rack travel in mm Tolerance mm Del. quantity	: 4.60 : + 0.10	RATED SPEED
cm3/1000 strokes Tolerance	+	Rated speed rpm : 1330 Tolerance 1/min : + 15
cm3/1000 strokes Check tolerance	+	ASSEMBLY GOVERNOR SETTING
cm3/1000S. Spreed Tolerance	: + 6.0	Rated speed rpm : 1293 rack travel mm : 9.65
cm3/1000 strokes Check tolerance	: 8.0	Rated speed rpm : 1325
	: 12.0	Tolerance 1/min : + 5 rack travel mm : 4.00
(B) SETTING OF INJUNITH GOVERNOR	ECTION PUMP	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1500
GUIDE SLEEVE POSIT	TON	Pated aroad nam · 120/
GOINE SPEEKE LOSII		Rated speed rpm : 1294 rack travel mm : 9.65
control lever position degree Rated speed rpm		Rated speed rpm : 1326 Tolerance 1/min : + 5 rack travel mm : 4.00
Rack travel in mm Tolerance mm	: 0.50 : +- 0.20	rack travel mm : 0.85 Tolerance mm : +- 0.55
governor spring pre-tension click setting x	: 3.50	Rated speed rpm : 1295 rack travel mm : 9.65

	+ 1327 + 5 4.00	rack travel mm Rated speed rpm Tolerance 1/min	: 750
Tolerance mm :	+	TORQUE CONTROL Rated speed rpm rack travel mm	
Rated speed rpm : rack travel mm :	1296 9.65	Tolerance mm	: +- 0.05
	1328 + 5 4.00	Rated speed rpm rack travel mm Tolerance mm	
rack travel mm : Tolerance mm :	0.85 ← 0.55	rack travel mm Tolerance mm	: 10.95 : +- 0.10
Rated speed rpm : rack travel mm :	1297 9.65	Rated speed rpm rack travel mm Tolerance mm	: 11.10
Rated speed rpm : Tolerance 1/min : rack travel mm :	+- 5 +	ANEROID/ALTITUDE COMPENSATOR TEST	
rack travel mm : Tolerance mm :	0.85 + 0.55	SETTING	
rack travel mm :	+	Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1500
Rated speed rpm : Tolerance 1/min : rack travel mm :	+- 5 +	Rated speed rpm Pressure hPa rack travel mm	: -
rack travel mm : Tolerance mm :	0.85 + 0.55	Tolerance mm MEASUREMENT	
LOW IDLE		Rated speed rpm	: 500
control lever position degree : tolerance degree :		Pressure hPa rack travel mm Tolerance mm	: 630 : 10.75 : + 0.05
Setting point w/out	bumper spring	Start interlock	
rack travel mm :	650 4.10 +- 0.10	Rated speed rpm Check speed 1/min	
Testing:	+		
Rated speed rpm : rack travel mm : Tolerance mm :	4.60	FUEL DELIVERY CHAI	RACTERISTICS

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1500 : 900 : 150.5	
Tolerance cm3/1000 strokes	: +- 3.0	
Check tolerance cm3/1000s.	: +- 6.0	
Aneroid pressure		
hPa Rated speed rpm	: – : 500	
Del. quantity cm3/1000 strokes	: 82.0	
Tolerance cm3/1000 strokes	: ÷ 1.0	
Check tolerance		
cm3/1000s.	: +- 4.0	
STARTING FUEL DELI	 [VERY	
Del. quantity	. 210.0	
cm3/1000 strokes Tolerance		
cm3/1000 strokes Check tolerance		
cm3/1000s.	: +- 19.0	
LOUITNIE		
LOW IDLE	(50	
Rated speed rpm	: 650	
Rack travel in mm Tolerance mm	: 4.60 : + 0.10	
Del. quantity cm3/1000 strokes	: 21.0	
Tolerance cm3/1000 strokes		
Check tolerance		
cm3/1000s. Spreed	: +- 6.0	
	: 8.0	
Check tolerance cm3/1000s.	: 12.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26,11.97 Test oil : ISO 4113

Combination No. : 0 402 076 768

Injection pump

Pump designation : PES6P120A720RS3322 EP type number : 0 412 026 764

Governor

Governer design. : RSV650...1250P8A567

: -2

Governer no. : 0 421 833 443

Cust. part No. : 87801594

Customer-spec. information

Customer : FNH-GEOTECH : 7,51 - DI Motor : 190.0

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : **←** 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 11.45 Tolerance mm : \leftarrow 0.05

Del. quantity cm3/1000 strokes : 153.0

Tolerance

cm3/1000 strokes : +- 1.0

Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000 strokes : 9.0 CONTROL LEVER	Check tolerance cm3/1000s. : +- 6.0	Check tolerance cm3/1000s. : + 6.0
Check tolerance cm3/1000s. 9.0	Spreed	
Rated speed rpm : 650		Check tolerance
Control lever Dosition degree 109.0		CONTROL LEVER
Rated speed rpm : 650 Rack travel in mm : 4.80 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 21.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000S. : + 6.0 Spreed Tolerance cm3/1000S. : + 6.0 Spreed Tolerance cm3/1000S. : + 6.0 Spreed Tolerance cm3/1000S. : + 6.0 Spreed Tolerance cm3/1000S. : 12.0 Rated speed rpm : 1263 Tolerance cm3/1000S. : 12.0 Rated speed rpm : 1295 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance mm : + 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1264 Tolerance mm : + 0.50 Tolerance mm : + 0.50 Tolerance 1/min : + 5 Tolerance mm : + 0.55 Tolerance mm : + 0.55 Rated speed rpm : 1265 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance mm : + 0.55 Tolerance 1/min : + 5 Tolerance 1/min : + 5 Tolerance mm : + 0.55 Rated speed rpm : 1265 Tolerance mm : + 0.55 Rated speed rpm : 1265 Tolerance 1/min : + 5 Tolerance 1/mi		
Tolerance mm : ← 0.10 Del. quantity cm3/1000 strokes : 21.0 Tolerance Cm3/1000 strokes : 4.0 Check tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000 strokes : 12.0 Check tolerance cm3/1000 strokes : 12.0 Check tolerance cm3/1000 strokes : 153.0 Rated speed rpm : 1263 Tolerance l/min : ← 0.55 Tolerance l/min : ← 5 Tolerance l/	+	position degree : 109.0
cm3/1000 strokes : 21.0 Rated speed rpm : 1300 Tolerance cm3/1000 strokes : + 3.0 ASSEMBLY GOVERNOR SETTING Check tolerance cm3/1000s : + 6.0 Rated speed rpm : 1263 Spreed Tolerance cm3/1000 strokes : 8.0 Rated speed rpm : 1295 Check tolerance cm3/1000s : 12.0 Rated speed rpm : 1295 Tolerance 1/min : + 5 rack travel mm : 4.00 4.00 (B) SETTING OF INJECTION PUMP WITH GOVERNOR Tolerance mm : + 0.55 GUIDE SLEEVE POSITION Rated speed rpm : 1264 rack travel mm : 10.45 Control lever position degree : - 3 Rated speed rpm : 800 Rated speed rpm : 1296 Tolerance 1/min : + 5 rack travel mm : 4.00 Rack travel in mm : 0.50 Tolerance mm : + 0.20 Tolerance 1/min : + 5 rack travel mm : 4.00 Rack travel in mm : 0.50 Tolerance mm : + 0.25 Rated speed rpm : 1265 rack travel mm : 4.00 Rack travel in mm : 0.50 Tolerance mm : + 0.55 Rated speed rpm : 1265 rack travel mm : 4.00 Rated speed rpm : 1265 rack travel mm : 4.00 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Aneroid pressure hPa : 1000 trokes : 153.0 Tolerance mm : 4.00	Tolerance mm : + 0.10	RATED SPEED
Check tolerance cm3/1000s. : + 6.0 Spreed	cm3/1000 strokes : 21.0 +	
Rated speed rpm : 1263 rack travel mm : 10.45	Check tolerance	ASSEMBLY GOVERNOR SETTING
Rated speed rpm : 1295 Tolerance 1/min : +- 5 Tolerance 1/min : +- 5 Tolerance 1/min : +- 5 Tolerance mm : +- 0.55 Rated speed rpm : 1206 Tolerance mm : +- 0.55 Rated speed rpm : 10.45	Spreed +	Rated speed rpm : 1263 rack travel mm : 10.45
WITH GOVERNOR GUIDF SLEEVE POSITION GUIDF SLEEVE POSITION GUIDF SLEEVE POSITION Rated speed rpm : 1264 rack travel mm : 10.45 Rated speed rpm : 1296 position degree : - 3 Rated speed rpm : 1296 position degree : - 3 Rated speed rpm : 4.00 Rack travel in mm : 0.50 Rack travel in mm : 0.50 Tolerance mm : + 0.20 Rated speed rpm : 1265 rack travel mm : 0.85 Tolerance mm : + 0.55 Governor spring pre-tension click setting x : 3.00 Rated speed rpm : 1265 rack travel mm : 10.45 Rated speed rpm : 1267 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1207 Tolerance 1/min : + 5 rack travel mm : 10.45 Rated speed rpm : 1207 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance 1/min : + 5 rack travel mm : 10.45 Rated speed rpm : 1207 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance mm : + 0.55	Check tolerance	Tolerance 1/min : +- 5
WITH GOVERNOR Tolerance mm : + 0.55 Rated speed rpm : 1500 Rated speed rpm : 1264 rack travel mm : 10.45 Control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 Rack travel in mm : 0.50 Tolerance mm : + 0.55 governor spring pre-tension click setting x : 3.00 Rated speed rpm : 1265 rack travel mm : 1265 rack travel mm : 1265 rack travel mm : 1265 rack travel mm : 1267 Tolerance 1/min : + 5 rack travel mm : 1297 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance mm : + 0.00 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance mm : + 0.05	‡	rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 Rated speed rpm : 0.85 Tolerance mm : + 0.55 governor spring pre-tension click setting x : 3.00 Rated speed rpm : 1265 rack travel mm : 10.45 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 10.45 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 153.0		Tolerance mm : +- 0.55
position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 governor spring pre-tension click setting x : 3.00 Rated speed rpm : 1265 rack travel mm : 1265 rack travel mm : 1265 rack travel mm : 1267 Tolerance 1/min : + 5 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 0.85 Tolerance mm : 1297 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 153.0	GUIDE SLEEVE POSITION	Rated speed rpm : 1264 rack travel mm : 10.45
governor spring pre-tension click setting x : 3.00 Rated speed rpm : 1265 rack travel mm : 10.45 Rated speed rpm : 1297 Tolerance 1/min : + 5 rack travel mm : 4.00 Rated speed rpm : 1200 Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 153.0	position degree : - 3	Tolerance 1/min : +- 5
pre-tension click setting x : 3.00 Rated speed rpm : 1265 Rated speed rpm : 1297 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1200 Rated speed rpm : 1200 Aneroid pressure hPa : 1000 Pal. quantity cm3/1000 strokes : 153.0	· ·	rack travel mm : 0.85 Tolerance mm : +- 0.55
FULL LOAD DELIVERY AT FULL LOAD STOP	pre-tension +	Rated speed rpm : 1265 rack travel mm : 10.45
Aneroid pressure	+	Tolerance 1/min : +- 5
cm3/1000 strokes : 153.0 +	Aneroid pressure + 1000 +	rack travel mm : 0.85 Tolerance mm : +- 0.55
	cm3/1000 strokes : 153.0 + Tolerance +	Rated speed rpm : 1266 rack travel mm : 10.45

Rated speed rpm Tolerance 1/min rack travel mm	: +- 5	rack travel mm Tolerance mm	
rack travel mm Tolerance mm		Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.60 : + 0.10
Rated speed rpm rack travel mm	: 1267 : 10.45	Rated speed rpm rack travel mm Tolerance mm	: 700
Rated speed rpm Tolerance 1/min rack travel mm	: +- 5	ANEROID/ALTITUDE COMPENSATOR TEST	
rack travel mm Tolerance mm	: 0.85 : + 0.55	SETTING	
Rated speed rpm rack travel mm	: 10.45	Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1000 : 11.90
Rated speed rpm Tolerance 1/min rack travel mm	: +- 5 : 4.00	Rated speed rpm Pressure hPa rack travel mm	: - : 7.90
rack travel mm Tolerance mm	: 0.85 : +- 0.55	Tolerance mm MEASUREMENT	: +- 0.10
LOW IDLE		Rated speed rpm	: 500
control lever position degree tolerance degree		Pressure hPa rack travel mm Tolerance mm	: 11.45
Setting point w/o	out bumper spring	Start interlock	
Rated speed rpm rack travel mm Tolerance mm	: 4.30	Rated speed rpm	
Testing:		+ speed 1/min +	: > 80
Rated speed rpm rack travel mm Tolerance mm	: 4.80	FUEL DELIVERY CHA	ARACTERISTICS
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 770	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1200 : 11.45 : ← 0.05	Tolerance cm3/1000s.	
Rated speed rpm			

Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 83.0 Tolerance cm3/1000 strokes : \leftarrow 1.0 Check tolerance cm3/1000s.4.0 STARTING FUEL DELIVERY Del. quantity cm3/1000 strokes : 215.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance : +- 19.0 cm3/1000s. LOW IDLE Rated speed rpm : 650 Rack travel in mm: 4.80 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 21.0 Tolerance cm3/1000 strokes : + 3.0Check tolerance cm3/1000s.: + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 26.11.97 : ISO 4113

Combination No. : 0 402 076 771

Injection pump

Pump designation : PES6P120A720RS3340 EP type number : 0 412 026 773

Governor

Governor design. : RSV650...1100F8A566

: -1

Governer no.

: 0 421 833 452

Cust. part No. : 87801591

Customer-spec. information

Customer

: FNH-GEOTECH

Power KW

: 201.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 086

Iniet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 600 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

3.60 Prestroke mm Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

: 0-60-120-180-240 Phasing

: -300 : +- 0.50

Check

Tolerance

tolerance $^{\circ}NW$: + 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

Barrel no.

: 1

BASIC SETTING

Rated speed rpm :

1075

Rack travel in mm : 12.35

Tolerance mm : + 0.05	Rated speed rpm : 1075
Del. quantity cm3/1000 strokes : 183.0	Aneroid pressure hPa : 1600 Del. quantity
Tolerance	cm3/1000 strokes : 183.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0	cm3/1000s. : +- 6.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVER
	control lever
Rated speed rpm : 650	position degree : 97.0 tolerance degree : +- 4.0
Rack travel in mm: 4.60 Tolerance mm: + 0.10	RATED SPEED
Del. quantity	rack travel mm : 4.00
cm3/1000 strokes : 23.0	Rated speed rpm : 1165
Tolerance	Folerance 1/min : + 15
cm3/1000 strokes : - 3.0	
Check tolerance + 6.0 +	ASSEMBLY GOVERNOR SETTING
	Rated speed fom : 1121
Spreed ** Tolerance **	naced aperd for : 1121 nack travel mm : 11.30
cm3/1000 strokes : 8.0	(AC# #) #44.6 (int) . 1(:00
Check tolerance	Rated speed rpm : 1152
cm3/1000s. : 12.0 4	Folerance 1/min : + 5
+	rack travel mm : 4.00
+	
(B) SETTING OF INJECTION PUMP	rack travel mm : 0.85
WITH GOVERNOR	Tolerance mm : +- 0.55 Rated speed rpm : 1350
-	Rated speed rpm . 1330
GUIDE SLEEVE RODITION	Rated speed rpm : 1122
GOIDE SEEEAS WASTATON	Rated speed rpm : 1122 rack travel mm : 11.30
+	2452
control lever	Rated speed rpm : 1153 Tolerance 1/min : +- 5
position degree : - 3 Rated speed rpm : 800 +	rack travel mm : 4.00
usited sheed that . one	rack travet iiiii . 4.00
Rack travel in mm: 0.30	rack travel mm : 0.85
Tolerance mm : + 0.20	Tolerance mm : +- 0.55
-	
governor spring +	D
pre-tension + click setting x : 2.50 +	Rated speed rpm : 1123 rack travel mm : 11.30
click setting x : 2.50	rack travel mm : 11.30
I	Rated speed rpm : 1154
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance 1/min : +- 5
	rack travel mm : 4.00

goal, tracial am	. 0.85	†
rack travel mm Tolerance mm	: 0.85 : ← 0.55	TORQUE CONTROL Rated speed rpm : 1075 rack travel mm : 12 35
Rated speed rpm rack travel mm	: 1124 : 11.30	+ rack travel mm : 12.35 + Tolerance mm : +- 0.05
Rated speed rpm Tolerance 1/min rack travel mm	: ← 5	Rated speed rpm : 800 rack travel mm : 13.15 Tolerance mm : + 0.10
rack travel mm Tolerance mm		Rated speed rpm : 700 rack travel mm : 13.20 Tolerance mm : + 0.15
Rated speed rpm rack travel mm	: 1125 : 11.30	ANEROID/ALTITUDE COMPENSATOR TEST
Rated speed rpm Tolerance 1/min rack travel mm	: ← 5	SETTING +
rack travel mm Tolerance mm	: 0.85 : ← 0.55	Rated speed rpm : 500 Pressure hPa : 1600 rack travel mm : 13.20 Tolerance mm : + 0.15
Rated speed rpm rack travel mm	: 1126 : 11.30	Rated speed rpm : 500 Pressure hPa : - rack travel mm : 7.60
Rated speed rpm Tolerance 1/min rack travel mm	: +- 5	Tolerance imm : + 0.15 MEASUREMENT
rack travel mm Tolerance mm	: 0.85 : ← 0.55	Rated speed rpm : 500 Pressure hPa : 1060
LOW IDLE		+ rack travel mm : 11.80 + Tolerance mm : + 0.10
control lever position degree		Start interlock
tolerance degree		Rated speed rpm : > 100
	out bumper spring	+ Check + speed 1/min :> 80
Rated speed rpm rack travel mm Tolerance mm	: 4.10	FUEL DELIVERY CHARACTERISTICS
Testing:		Aneroid pressure
Rated speed rpm rack travel mm Tolerance mm	: 650 : 4.60 : + 0.10	+ hPa : 1600 + Rated speed rpm : 800 + Del. quantity + cm3/1000 strokes : 210.0
rack travel mm Rated speed rpm		Tolerance cm3/1000 strokes : 210.0

Check tolerance cm3/1000s. 6.0 Aneroid pressure hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 83.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s.4.0 STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm 20.50 : **←** 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000s.: + 19.0 LOW IDLE Rated speed rpm : 650 4.60 Rack travel in mm : : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S.12.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.97 Test oil : ISO 4113

Combination No. : 0 402 076 787

Injection pump

Pump designation : PES6P12OA72ORS3340 EP type number : 0 412 026 773

Governor

Governer design. : RSV400...1050P0A602

Governer no. : 0 421 833 483

Cust. part No. : 87801595

Customer-spec. information

Customer : FNH-GEOTECH

Motor : EP040B Power KW : 176.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 100 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

	 †
Rack travel in mm : 11.25 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 158.0	Rated speed rpm : 1050 Aneroid pressure hPa : 1600
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 158.0 Tolerance
Check tolerance cm3/1000s. : + 6.0	+ cm3/1000 strokes : +- 1.0 Check tolerance - cm3/1000s. : +- 6.0
Spreed	+ Spreed + Tolerance + cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : 5.0	Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVED
	CONTROL LEVER
Rated speed rpm : 400	- control lever - position degree : 94.0
Rack travel in mm: 5.00 Tolerance mm: + 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 26.0 Tolerance	+ rack travel mm : 0.85 + Tolerance mm : +- 0.55 + Rated speed rpm : 1320
cm3/1000 strokes : + 3.0 Check tolerance	rack travel mm : 4.00
cm3/1000s. : +- 6.0 Spreed Tolerance	+ Rated speed rpm : 1165 + Tolerance 1/min : +- 15 +
cm3/1000 strokes : 8.0 Check tolerance	ASSEMBLY GOVERNOR SETTING
cm3/1000s. : 12.0	Rated speed rpm : 1093 rack travel mm : 10.20
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1148 Tolerance 1/min : +- 5 rack travel mm : 4.00
GUIDE SLEEVE POSITION	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1320
control lever position degree : - 3 Rated speed rpm : 800	Rated speed rpm : 1094 rack travel mm : 10.20
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	Rated speed rpm : 1149 Tolerance 1/min : +- 5 rack travel mm : 4.00
governor spring pre-tension click setting x : 4.25	rack travel mm : 0.85 Tolerance mm : +- 0.55

	I made tribulation a 2.00
Rated speed rpm : 1095 rack travel mm : 10.20	rack travel nm : 5.00 Tolerance mm : + 0.10
	rack travel mm : 2.00
Rated speed rpm : 1150	+ Rated speed rpm : 535
Tolerance 1/min : +- 5 rack travel mm : 4.00	Tolerance 1/min : +- 50
rack travet mm : 4.00	I
rack travel mm : 0.85 Tolerance mm : + 0.55	TORQUE CONTROL
Tolerance mm : + 0.55	+ Rated speed rpm : 1050
	rack travel mm : 11.25 Tolerance mm : + 0.05
Rated speed rpm : 1096	Toter ance likii . += 0.05
rack travel mm : 10.20	Rated speed rpm : 700
0.4.4.	rack travel mm : 12.40 Tolerance mm : + 0.05
Rated speed rpm : 1151 Tolerance 1/min : + 5	† Tolerance mm : + U.U5
rack travel mm : 4.00	Rated speed rpm : 600
	Rated speed rpm : 600 rack travel mm : 12.50 Tolerance mm : + 0.15
rack travel mm : 0.85 Tolerance mm : +- 0.55	† Tolerance mm : +- 0.15
Tolerance mm : +- U.55	İ
	+ ANEROID/ALTITUDE
Rated speed rpm : 1097	+ COMPENSATOR TEST
rack travel mm : 10.20	†
Rated speed rpm : 1152	+ SETTING
Tolerance 1/min : + 5	+
rack travel mm : 4.00	+ Rated speed rpm : 500
nack thankal mm · 0.85	+ Pressure hPa : 1600
rack travel mm : 0.85 Tolerance mm : + 0.55	Pressure hPa : 1600 rack travel mm : 12.50 Tolerance mm : +- 0.10
	+
4000	Rated speed rpm : 500
Rated speed rpm : 1098 rack travel mm : 10.20	+ Pressure hPa : - + rack travel mm : 8.10
Tack travet init . 10.20	Tolerance mm : +- 0.10
Rated speed rpm : 1153	+
Tolerance 1/min : +- 5	† MEASUREMENT
rack travel mm : 4.00	Rated speed rpm : 500
rack travel mm : 0.85	+ Tracea opeca i piii . 300
Tolerance mm : +- 0.55	+ Pressure hPa : 980
	rack travel nm : 11.40 Tolerance mm : +- 0.05
LOW IDLE	+ roterance man
	+
control lever	+ FUEL DELIVERY CHARACTERISTICS
position degree : 73.0	+ TOEL DELIVER CHARACTERISTICS
Setting point w/out bumper spring	Aneroid pressure
Rated speed rpm : 400	+ hPa : 1600 + Rated speed rpm : 700
rack travel mm : 4.50	Del. quantity
rack travel mm : 4.50 Tolerance mm : +- 0.10	+ cm3/1000 strokes : 196.0
Tooting	+ Tolerance
Testing:	+ cm3/1000 strokes : +- 3.0 + Check tolerance
Rated speed rpm : 400	+ cm3/1000s. : +- 6.0
	•

Aneroid pressure

hPa : Rated speed rpm : 500

Del. quantity

cm3/1000 strokes : 94.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +-0.50

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : +- 19.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 5.00 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 26.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

cm3/1000s. : + 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 26.11.97 : ISO 4113

Combination No. : 0 402 076 788

Injection pump

Pump designation : PES6P120A720RS3340 EP type number : 0 412 026 773

Governor Governer design. : RSV400...1050P0A603

Governer no. : 0 421 833 484

Cust. part No. : 87801600

Customer-spec. information

Customer : FNH-GEOTECH : EP 040 B Motor Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

40 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 100 Tolerance l/h: + 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

Barrel no. : 1

BASIC SETTING

		†
Rack travel in mm : Tolerance mm :	10.45 +- 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 1050
Del. quantity cm3/1000 strokes :	136.0	Aneroid pressure hPa : 1500 Del. quantity
Tolerance cm3/1000 strokes :	+ 1.0	cm3/1000 strokes : 136.0 Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s.	+ 6.0	Check tolerance cm3/1000s. : +- 6.0
Spreed		+ Spreed + Tolerance + cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes :	5.0	Check tolerance : 9.0
Check tolerance cm3/1000s.	9.0	
		+ CONTROL LEVER +
Rated speed rpm :		 control lever position degree : 76.0 tolerance degree : + 4.0
Rack travel in mma: Tolerance mm Del. quantity	4.50 	+ RATED SPEED
cm3/1000 strokes : Tolerance	23.0 + 3.0	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1320
Check tolerance	+ 6.0	t rack travel mm : 4.00
Spreed Tolerance cm3/1000 strokes :	8.0	+ Rated speed rpm : 1155 + Tolerance 1/min : +- 15
Check tolerance cm3/1000s.		ASSEMBLY GOVERNOR SETTING
		Rated speed rpm : 1093 rack travel mm : 9.45
(B) SETTING OF INJE WITH GOVERNOR	CTION PUMP	Rated speed rpm : 1153 Tolerance 1/min : +- 5 rack travel mm : 4.00
GUIDE SLEEVE POSITI	ON	rack travel mm : 0.85 Tolerance mm : +- 0.55
control lever position degree : Rated speed rpm :		Rated speed rpm : 1094 rack travel mm : 9.45
Rack travel in mm : Tolerance mm :		Rated speed rpm : 1154 Tolerance 1/min : +- 5 rack travel mm : 4.00
<pre>governor spring pre-tension click setting x :</pre>	5.00	rack travel mm : 0.85 Tolerance mm : +- 0.55

Rated speed rpm rack travel mm	: 1095 : 9.45	Rated speed rpm : 400 rack travel mm : 4.50 Tolerance mm : +- 0.10	
Rated speed rpm Tolerance 1/min rack travel mm	: 5 +	rack travel mm : 2.00 Rated speed rpm : 535 Tolerance 1/min : +- 50	
rack travel mm Tolerance mm	: 0.85 : + 0.55	TORQUE CONTROL Rated speed rpm : 1050	
Rated speed rpm rack travel mm	: 1096 : 9.45	rack travel mm : 10.45 Tolerance mm : + 0.05	
Rated speed rpm Tolerance 1/min rack travel mm	: +- 5 +	Rated speed rpm : 750 rack travel mm : 11.30 Tolerance mm : +- 0.10	
rack travel mm Tolerance mm	: 0.85 : +- 0.55	Rated speed rpm : 600 rack travel mm : 11.35 Tolerance mm : +- 0.15	
Rated speed rpm rack travel mm	: 1097 : 9.45	ANEROID/ALTITUDE COMPENSATOR TEST	
Rated speed rpm Tolerance 1/min rack travel mm	:+ 5 +	SETTING	
rack travel mm Tolerance mm	: 0.85 : + 0.55	Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 11.30 Tolerance mm : +- 0.10	
Rated speed rpm rack travel mm	: 1098 : 9.45	Rated speed rpm : 500 Pressure hPa : - rack travel mm : 8.10 Tolerance mm : + 0.10	
Rated speed rpm Tolerance 1/min rack travel mm	: 1158 : + 5 : 4.00	Tolerance mm: : + 0.10 MEASUREMENT	
rack travel mm Tolerance mm		Rated speed rpm : 500 Pressure hPa : 900	
LOW IDLE		rack travel mm : 10.80 Tolerance mm : +- 0.10	
control lever position degree tolerance degree		FUEL DELIVERY CHARACTERISTICS	
Setting point w/o	ut bumper spring	Aneroid pressure	
Rated speed rpm rack travel mm Tolerance mm	: 5.00 +	hPa : 1500 Rated speed rpm : 750 Del. quantity cm3/1000 strokes : 167.0	
Testing:		Tolerance cm3/1000 strokes : +- 3.0	

Check tolerance cm3/10003.: +- 6.0 Aneroid pressure hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 92.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000S. 4.0 STARTING FUEL DELIVERY Check hydraulic start locking and unlocking device with 500...1000 hPa. Rated speed rpm 100 20.50 rack travel mm Tolerance mm : **←** 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000S.: + 19.0 LOW IDLE Rated speed rpm : 400 4.50 Rack travel in mm: Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000S.6.0

End of test specification sheet

8.0

12.0

Spreed Tolerance

cm3/1000 strokes : Check tolerance cm3/1000s. :

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 26.11.97 : ISO 4113

Combination No. : 0 402 076 804

Injection pump

Pump designation : PES6P120A720RS3340

EP type number

: 0 412 026 773

Governor

Governer design. : RSV650...1100P8A566

: -2

Governer no.

: 0 421 833 559

Cust. part No. : 87801598

Customer-spec. information

Customer

: NH

Power KW

: 162.0

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve

: 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

208.5

Tolerance bar

: **←** 1.5

Test lines

: 1 680 750 089

Outside diameter :

8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm 3.60 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Check

: +- 0.30 tolerance °NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 10.80

Tolerance mm : +- 0.05	Rated speed rpm : 1025 Aneroid pressure
Del. quantity cm3/1000 strokes : 143.5	hPa : 1600 Del. quantity
Tolerance	cm3/1000 strokes : 143.5 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0	cm3/1000S. : +- 6.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVER
	control lever position degree : 95.0
Rated speed rpm : 650	tolerance degree : +- 4.0
Rack travel in mm: 4.70 Tolerance mm: +- 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 23.0 Tolerance	rack travel mm : 4.00 Rated speed rpm : 1105 Tolerance 1/min : +- 15
cm3/1000 strokes : + 3.0 + Check tolerance +	ASSEMBLY GOVERNOR SETTING
cm3/1000s. : +- 6.0 +- Spreed	Rated speed rpm : 1072
Tolerance + cm3/1000 strokes : 8.0 + Check tolerance +	rack travel mm : 9.80 Rated speed rpm : 1100
cm3/1000s. : 12.0	Tolerance 1/min : + 5 rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1350
GUIDE SLEEVE POSITION	Rated speed rpm : 1073 rack travel mm : 9.80
control lever position degree : - 3	Rated speed rpm : 1101 Tolerance 1/min : +- 5
Rated speed rpm : 800	rack travel mm : 4.00
Rack travel in mm: 0.50 Tolerance mm: + 0.20	rack travel mm : 0.85 Tolerance mm : +- 0.55
governor spring pre-tension click setting x : 3.75	Rated speed rpm : 1074 rack travel mm : 9.80
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 1102 Tolerance 1/min : +- 5 rack travel mm : 4.00

rack traval me . 0.85	
rack travel mm : 0.85 + Tolerance mm : + 0.55 +	TORQUE CONTROL
+	Rated speed rpm : 1025
1075	rack travel mm : 10.80 Tolerance mm : +- 0.05
Rated speed rpm : 1075 + rack travel mm : 9.80 +	Tolerance mm : +- 0.05
Tack travet listy . 9.00	Rated speed rpm : 800
Rated speed rpm : 1103	rack travel mm : 11.55
Rated speed rpm : 1103 Tolerance 1/min : +- 5	Tolerance mm : +- 0.10
rack travel mm : 4.00	Dotted arrest array . 700
rack travel mm : 0.85	Rated speed rpm : 700
rack travel mm : 0.85 Tolerance mm : + 0.55	rack travel mm : 11.60 Tolerance mm : + 0.15
†	
Rated speed rpm : 1076	ANEROID/ALTITUDE
rack travel mm : 9.80	COMPENSATOR TEST
\	
Rated speed rpm : 1104 Tolerance 1/min : +- 5	CETTING
rack travel num : 4.00	SETTING
Ì	Rated speed rpm : 500
rack travel mm : 0.85 } Tolerance mm : + 0.55 }	Pressure hPa : 1600
Tolerance mm : +- U.55	rack travel mm : 11.55 Tolerance mm : +- 0.15
I	rocerance iiiii . +- 0.15
Rated speed rpm : 1077	Rated speed rpm : 500
rack travel mm : 9.80	Pressure hPa : -
Rated speed rpm : 1105	rack travel mm : 7.60 Tolerance mm : +- 0.15
Tolerance 1/min : + 5	Total arice min
rack travel mm : 4.00	MEASUREMENT
rack travel mm · 0.85	Rated speed rpm : 500
rack travel mm : 0.85 + Tolerance mm : + 0.55 +	hated speed ipili . 300
+	Pressure hPa : 840
101.7015	Pressure hPa : 840 rack travel nm : 10.70 Tolerance mm : +- 0.10
LOW IDLE	Toterance mm : +- U.1U
 	
control lever	Start interlock
position degree : 76.0 + tolerance degree : + 4.0 +	Rated speed rpm : > 100
toterance degree 4.0	Nated Speed (pill . > 100
Setting point w/out bumper spring	Check
Rated speed rpm : 650 +	speed 1/min : > 80
rack travel mm : 4.20 + Tolerance mm : + 0.10 +	FUEL DELIVERY CHARACTERISTICS
+	
Testing:	Aneroid pressure
Rated speed rpm : 650	hPa : 1600
rack travel mm : 4.70	Rated speed rpm : 800
Tolerance mm : +- 0.10	Del. quantity
rack travel mm : 2.00 +	cm3/1000 strokes : 167.5 Tolerance
Rated speed rpm : 760	cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000S.: +- 6.0 Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000S.4.0 STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm 20.50 Tolerance min : + 0.50 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000S. : +- 19.0 LOW IDLE Rated speed rpm : 650 Rack travel in mm: 4.70 Tolerance mm : - 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance 12.0 cm3/1000s.End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 26.11.97 : ISO 4113

Combination No. : 0 402 076 805

Injection pump

Pump designation : PES6P120A720RS3340 EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1100P8A566

: -3

Governer no.

: 0 421 833 560

Cust. part No. : 87801593

Customer-spec. information Customer : NH

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

40 temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 115 Tolerance l/h: +- 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

: 4

: 0-60-120-180-240 Phasing

: -300

Tolerance : + 0.50

Check

tolerance $^{\circ}NW$: \leftarrow 0.75

Start of delivery blocking

Check

tolerance °NW : +- 0.30

: 1 Barrel no.

BASIC SETTING

	1
Rack travel in mm : 11.70 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 172.0	Rated speed rpm : 1025 Aneroid pressure hPa : 1600
Tolerance cm3/1000 strokes : + 1.0	+ nPa : 1600 - Del. quantity - cm3/1000 strokes : 172.0 - Tolerance
Check tolerance cm3/1000s. : +- 6.0	cm3/1000 strokes : +- 1.0 Check tolerance
Spreed	+ cm3/1000s. : +- 6.0 + Spreed + Tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	. 7.8
	CONTROL LEVER
Rated speed rpm : 650 Pack travel in mm : 4.30	control lever position degree : 90.0
Tolerance mm : + 0.10 Del. quantity	tolerance degree : +- 4.0
cm3/1000 strokes : 21.0 Tolerance	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : +- 3.0 Check tolerance	Rated speed rpm : 1058 rack travel mm : 10.70
cm3/1000s. : +- 6.0 Spreed Tolerance	+ Rated speed rpm : 1078 + Tolerance 1/min : +- 5
cm3/1000 strokes : 8.0 Check tolerance	rack travel mm : 4.00
cm3/1000s. : 12.0	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	‡
_	+ Rated speed rpm : 1059 + rack travel mm : 10.70
GUIDE SLEEVE POSITION	Rated speed rpm : 1079 Tolerance 1/min : +- 5 rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1300
Rack travel in mm : 0.50 Tolerance mm : + 0.20	+ + Rated speed rpm : 1060
governor spring pre-tension	rack travel mm : 10.70
click setting x : 2.25	Rated speed rpm : 1080 Tolerance 1/min : +- 5 rack travel mm : 4.00

	1
rack travel mm : 0.85	rack travel mm : 2.00
Tolerance mm : + 0.55	Rated speed rpm : 735
Rated speed rpm : 1300	T Rated speed (pill . 755
Rateu Speed Ipili . 1000	I
	TORQUE CONTROL
Pated cheed nom · 1061	
Rated speed rpm : 1061 rack travel mm : 10.70	+ Rated speed rpm : 1025
rack travet mm : 10.70	rack travel mm : 11.70 Tolerance mm : + 0.05
Data di cara di Cara di A004	+ Tolerance mm : + U.U5
Rated speed rpm : 1081	†
Tolerance 1/min : +- 5	† Rated speed rpm : 800
rack travel mm : 4.00	+ rack travel mm : 12.50
	Rated speed rpm : 800 rack travel mm : 12.50 Tolerance mm : + 0.10
rack travel mm : 0.85	+
Tolerance mm : + 0.55 Rated speed rpm : 1300	+ Rated speed rpm : 700
Rated speed rpm : 1300	+ rack travel mm : 12.60
	Rated speed rpm : 700 rack travel mm : 12.60 Tolerance mm : +- 0.15
	+
Rated speed rpm : 1062 rack travel mm : 10.70	
rack travel mm : 10.70	ANEROID/ALTITUDE
	+ COMPENSATOR TEST
Rated speed rpm : 1082	
Tolerance 1/min : + 5	
rack travel mm : 4.00	+ SETTING
Table Clares Hall	1 OCT TING
rack travel mm : 0.85	Rated speed rom : 500
Tolerance mm : +- 0.55	+ Rated speed rpm : 500 + Pressure hPa : 1600
Tolerance mm : +- 0.55 Rated speed rpm : 1300	- rack traval mm : 12.60
Rated Speed (pill : 1500	+ rack travel mm : 12.60 + Tolerance mm : +- 0.15
	Toterance mm : +- U.15
Datad around arm . 1067	T Dated aread man . 500
Rated speed rpm : 1063 rack travel mm : 10.76	+ Rated speed rpm : 500
rack travel mm : 19.70	+ Pressure npa : -
0.4.1	Rated speed rpm : 500 Pressure hPa : - rack travel mm : 7.90 Tolerance mm : +- 0.15
Rated speed rpm : 1083	† Tolerance mm : +- 0.15
Tolerance 1/min : + 5	†
rack travel mm : 4.00	+ MEASUREMENT
	+
rack travel mm : 0.85 Tolerance mm : +- 0.55	+ Rated speed rpm : 500
	+
Rated speed rpm : 1300	+ Pressure hPa : 1100
	+ rack travel mm : 11.80
	Tolerance mm : +- 0.10
LOW IDLE	+
	+
	+ Start interlock
control lever	+
position degree : 74.0	+ Rated speed rpm : > 100
tolerance degree : - 4.0	+
	+ Check
Setting point w/out bumper spring	+ speed 1/min :> 80
	+
Rated speed rpm : 650	+
rack travel mm : 3.80	→ FUEL DELIVERY CHARACTERISTICS
Tolerance mm : + 0.10	
. a consequence of the consequen	
Testing:	Aneroid pressure
· • · · · • ·	+ hPa : 1600
Rated speed rpm : 650	Rated speed rpm : 800
rack travel mm : 4.30	+ Del. quantity
Tolerance mm : +- 0.10	+ cm3/1000 strokes : 196.0
roterance man : T 0.10	T (1110) 1000 211.0K62 : 130.0

Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Aneroid pressure hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes 1.0 Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Rated speed rpm 100 20.50 rack travel mm : Tolerance mm : +- 0.50 Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000s. : +- 19.0 LOW IDLE Rated speed rpm : 650 Rack travel in mm : 4.30 : +- 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 21.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.11.97 Test oil : ISO 4113

Combination No. : 0 402 076 810

Injection pump

Pump designation : PES6P12OA72ORS3340 EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1050P8A566

: -4

Governer no. : 0 421 833 583

Cust. part No. : 87801590

Customer-spec. information

Customer : NH

Motor : EP 040 B Power KW : 198.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance $^{\circ}NW$: +- 0.75

Start of delivery blocking

Check

tolerance 'NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 12.35

Tolerance mm	: + 0.05	+ Rated speed rpm	: 1025
		Aneroid pressure	
Del. quantity cm3/1000 strokes	: 183.0	hPa Del. quantity	: 1600
Tolerance		cm3/1000 strokes	: 183.0
cm3/1000 strokes	: +- 1.0	Tolerance cm3/1000 strokes Check tolerance	: +- 1.0
Check tolerance		- cm3/1000s.	: +- 6.0
cm3/1000s.	: ← 6.Ω	Spreed	
Spreed		Tolerance cm3/1000 strokes	: 5.0
Talanawaa	<u>-</u>	Check tolerance	0.0
Tolerance cm3/1000 strokes	: 5.0	+ cm3/1000s.	: 9.0
Check tolerance			
cm3/1000s.	: 9.0	CONTROL LEVER	
		control lever	
Rated speed rpm	: 650	position degree	: 95.0
•	·	40051151 14 00115115	05777110
Rack travel in mm Tolerance mm		ASSEMBLY GOVERNOR	SETTING
Del. quantity	· · · · -	Rated speed rpm	: 1067
cm3/1000 strokes	: 23.0	rack travel mm	: 11.30
Tolerance cm3/1000 strokes	: ← 3.0	t Rated speed rpm	: 1097
Check tolerance	-	Tolerance 1/min	=
cm3/1000s.	: +- 6.0	rack travel mm	: 4.00
Spreed Tolerance	+	hook though mm	. 0 05
cm3/1000 strokes	: 8.0	rack travel mm Tolerance mm	: 0.85 : +- 0.55
Check tolerance	-	Rated speed rpm	: 1300
cm3/1000s.	: 12.0		
	-	Rated speed rpm	: 1068
(B) SETTING OF IN	JECTION PUMP	rack travel mm	: 11.30
WITH GOVERNOR	4	+	
	+	Rated speed rpm	
		Tolerance 1/min rack travel mm	
GUIDE SLEEVE POSI	FION -	}-	
	4	rack travel mm Tolerance mm	: 0.85
control Lever	-	rolerance mm	: +- 0.55
position degree	: - 3		
Rated speed rpm		Rated speed rpm	
•	-	rack travel mm	
Rack travel in mm Tolerance mm		Dated anded the	: 1099
roterance infl	. — 0.20	Rated speed rpm Tolerance 1/min	
governor spring	4	rack travel mm	
pre-tension	3.50	 	
click setting x	: 2.50	rack travel mm Tolerance mm	: 0.85
		roterance mm	: +- 0.55
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	-	
	+	Rated speed rpm	: 1070

rack travel mm	: 11.30	+ rack travel mm : 13.05 + Tolerance mm : +- 0.10
Rated speed rom	: 1100	1
Rated speed rpm Tolerance 1/min	: +- 5	Rated speed rpm : 650
rack travel mm	4.00	rack travel mm : 13.10
TOTAL TRANSPORT	. ,,,,,,	rack travel mm : 13.10 Tolerance mm : + 0.15
rack travel mm	• 0.85	1 Total differential . 1 0.13
Tolerance mm		
TOTAL MILE MAN	0.55	ANEROID/ALTITUDE
		COMPENSATOR TEST
Pated speed rom	• 1071	T COMPLINATOR 1231
Rated speed rpm rack travel mm	• 11 70	Ţ
I GCK LLGACT HIM	. 17.50	SETTING
Rated speed rpm	• 1101	J SETTING
Tolerance 1/min	• 1101	T Dotad aread are . 500
nock though me		+ Rated speed rpm : 500 + Pressure hPa : 1600
rack travel mm	: 4.00	+ rressure nra : 1600
nock though me	. 0 05	Pressure hPa : 1600 rack travel mm : 13.10 Tolerance mm : + 0.15
rack travel mm	: U.00	+ loterance mm : + U.15
Tolerance mm	: - 0.55	Tooland areas to see
		Rated speed rpm : 500
0	. 4070	Pressure hPa : -
Rated speed rpm rack travel mm	10/2	rack travel mm : 7.80
rack travel mm	: 77.30	+ Tolerance mm : +- 0.15
5 to 1	4400	†
Rated speed rpm		+ MEASUREMENT
Tolerance 1/min		†
rack travel mm	: 4.00	+ Rated speed rpm : 500
		+
rack travel mm		+ Pressure hPa : 980
Tolerance mm	: ← 0.55	+ rack travel mm : 11.60
		† Tolerance mm : +- 0.10
		+
LOW IDLE		
		+ Start interlock
		†
control lever		+ Rated speed rpm :> 100
position degree	: 76.0	+
		+ Check
Setting point w/	out bumper spring	+ speed 1/min : > 80
		+
Rated speed rpm		+
		+ FUEL DELIVERY CHARACTERISTICS
rack travel mm Tolerance mm	: - 0.10	+
		+
Testing:		+ Aneroid pressure
•		+ hPa : 1600
Rated speed rpm	: 650	Rated speed rpm : 750
rack travel mm	: 4.60	- Del. quantity
rack travel mm Tolerance mm	: ← 0.10	- cm3/1000 strokes : 210.0
. 5 (5) (6) (18)		Tolerance
rack travel mm	: 2 00	cm3/1000 strokes : +- 3.0
Rated speed rpm		Check tolerance
warea speca rpm	. 100	- cm3/1000s. : +- 6.0
TORQUE CONTROL		I
	: 1025	Approved processing
Rated speed rpm	• 1ULD • 10 75	+ Aneroid pressure
rack travel mm Tolerance mm	: 12.35	+ hPa : -
roterance mm	: ← 0.05	Rated speed rpm : 500
	750	+ Del. quantity
Rated speed rpm	: 750	+ cm3/1000 strokes : 86.0

Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm : 20.50 Tolerance mm : +- 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance : + 19.0 cm3/1000s.

LOW IDLE

Rated speed rpm : 650 Rack travel in mm : 4.60 Tolerance mm : +-0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : \leftarrow 3.0 Check tolerance cm3/1000s.: +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.97 : Iso 4113 Test oil

Combination No. : 0 402 076 816

Injection pump

Pump designation : PES6P120A720RS3340 EP type number : 0 412 026 773

Governor

Governer design. : RSV650...1100P8A566

: -5

: 0 421 833 601 Governer no.

Cust. part No. : 87801596

Customer-spec. information

Customer : NH

Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 120
Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : \leftarrow 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Check

tolerance *NW : +- 0.30

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1025	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 11.45 + Tolerance mm : + 0.05 +	Rated speed rpm : 1025
	Aneroid pressure
Del. quantity + cm3/1000 strokes : 159.0 +	hPa : 1600 Del. quantity
Tolerance	cm3/1000 strokes : 159.0 Tolerance
cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 6.0	cm3/1000s. : +- 6.0
tins/1000s. : == 6.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 5.0 Check tolerance
Tolerance	cm3/1000s. : 9.0
cm3/1000 strokes : 5.0	
Check tolerance cm3/1000s. : 9.0	CONTROL LEVED
tms/1000s. : 9.0	CONTROL LEVER
+	control lever
Rated speed rpm : 650	position degree : 97.0
+	RATED SPEED
Rack travel in mm: 4.60	
Tolerance mm : +- 0.10 +- Del. quantity +-	rack travel mm : 4.00 Rated speed rpm : 1100
cm3/1000 strokes : 23.0	Tolerance 1/min : + 15
Tolerance + 3.0 + + + + + + + + + + + + + + + + + + +	ASSEMBLY GOVERNOR SETTING
Check tolerance	ASSEMBLY GOVERNOR SETTING
cm3/1000s. : +- 6.0	Rated speed rpm : 1067
Spreed + Tolerance +	rack travel mm : 10.40
cm3/1000 strokes : 8.0	Rated speed rpm : 1097
Check tolerance	Tolerance 1/min : + 5
cm3/1000s. : 12.0	rack travel mm : 4.00
+	rack travel mm : 0.85
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance mm : +- 0.55 Rated speed rpm : 1250
WITH GOVERNOR	Rated speed rpm : 1230
<u> </u>	Rated speed rpm · 1048
GUIDE SLEEVE POSITION	Rated speed rpm : 1068 rack travel mm : 10.40
Ţ	Rated speed rpm : 1098
control lever	Tolerance 1/min : +- 5
position degree : -3 + Rated speed rpm : 800 +	rack travel mm : 4.00
+	rack travel mm : 0.85 Tolerance mm : +- 0.55
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Tolerance mm : +- 0.55
governor spring	Rated speed rpm · 1040
pre-tension +	Rated speed rpm : 1069 rack travel mm : 10.40
click setting x : 3.75	

Rated speed rpm Tolerance 1/min rack travel mm	: +- 5	Rated speed rpm : 700
		TORQUE CONTROL
rack travel mm Tolerance mm	: 0.85	Rated speed rpm : 1025
Tolerance mm	: ← 0.55	+ rack travel mm : 11.45
		rack travel mm : 11.45 Tolerance mm : +- 0.05
Rated speed rpm	• 1070	Rated speed rpm : 800
rack travel mm	: 10.40	rack travel mm : 12.70
I dek et dvet likit	. 10.40	rack travel mm : 12.30 Tolerance mm : +- 0.10
Rated speed rpm	: 1100	I Toter ance man . Total
Tolerance 1/min	: +- 5	Pated speed rnm · 750
rack travel mm		rack travel mm : 12 35
TOOK CT GYCE IIII)	. 4.00	Rated speed rpm : 750 rack travel mm : 12.35 Tolerance mm : +- 0.15
rack travel mm	: 0.85	}_
Tolerance mm	: +- 0.55	<u> </u>
rocci di ice imi		ANEROID/ALTITUDE
		+ COMPENSATOR TEST
Rated speed rpm	: 1071	The state of the s
rack travel mm	: 10.40	1
		+ SETTING
Rated speed rpm	: 1101	1
Tolerance 1/min		+ Rated speed rpm : 500
rack travel mm		Rated speed rpm : 500 Pressure hPa : 1600 rack travel mm : 12.30
		rack travel mm : 12 30
rack travel mm	: 0.85	Rated speed rpm : 500 Pressure hPa : 1600 rack travel mm : 12.30 Tolerance mm : + 0.15
Tolerance mm	: +- 0.55	Total arise time
		Rated speed rpm : 500
		+ Pressure hPa : -
Rated speed rpm	: 1072	rack travel mm : 7.80
rack travel mm	: 10.40	Tolerance mm : + 0.15
		
Rated speed rpm	: 1102	+ MEASUREMENT
Tolerance 1/min	: +- 5	+
rack travel mm	: 4.00	+ Rated speed rpm : 500
rack travel mm	· 0.85	† + Pressure hPa : 1050
Tolerance mm		rack travel mm : 11.50
rocerarice min	0.55	+ Tolerance mm : + 0.10
		- I roterance min . +- 0.10
LOW IDLE		
		+ Start interlock
		100
control lever	: 79.0	+ Rated speed rpm :> 100
position degree	. 79.0	T Check
Sotting point	aut humaan caning	+ speed 1/min :> 80
secting point w/	out bumper spring	+ speed 1/11/11 . > 60
Rated speed rpm	: 650	
rack travel mm	: 4.10	→ FUEL DELIVERY CHARACTERISTICS
rack travel mm Tolerance mm	: +- 0.10	+
		+
Testing:		+ Aneroid pressure
	(50	+ hPa : 1600
Rated speed rpm	: 650	+ Rated speed rpm : 800
rack travel mm Tolerance mm	: 4.6U	+ Del. quantity
Tolerance mm	: +- 0.10	+ cm3/1000 strokes : 185.0
.1	. 2.00	+ Tolerance
rack travel mm	: 2.00	+ cm3/1000 strokes : +- 3.0

Check tolerance : **←** 6.0 cm3/1000s. Aneroid pressure hPa Rated speed rpm 500 Del. quantity cm3/1000 strokes : 86.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Rated speed rpm 100 rack travel mm 20.50 : + 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : + 15.0Check tolerance cm3/1000s. : + 19.0 LOW IDLE Rated speed rpm : 650 Rack travel in mm: 4.60 : ← 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s.12.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.11.97 Test oil : ISO 4113

Combination No. : 0 402 646 623

Injection pump

Pump designation : PE6P120A320RS7288

: -10

EP type number : 0 412 626 918

Governor

Governer design. : RQV250...900PA1069

: -1

Governer no. : 0 421 814 070

Cust. part No. : 866141 P06 v. 11/97

Customer—spec. information
Customer : PENTA

Motor : TAD 10307

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.5
Tolerance bar : +- 0.1

Overflow quantity

min. l/h : 300 Tolerance l/h : \leftarrow 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.45
Tolerance mm : +- 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Barrel no.	: 1	guide sleeve travel mm : 1.12 Tolerance mm : + 0.25
BASIC SETTING		Rated speed rpm : 657
Rated speed rpm	: 700	guide sleeve - travel mm : 5.07 - Tolerance mm : +- 0.25
Rack travel in mn Tolerance mm		- Rated speed rpm : 315 - guide sleeve
Del. quantity cm3/1000 strokes	: 290.0	travel mm : 1.98 - Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes	: + 1.0	Rated speed rpm : 365 guide sleeve travel mm : 2.63
Check tolerance cm3/1000s.	2 +- 4.0	Tolerance mm : +- 0.25
Spreed	* · · · · · · · · · · · · · · · · · · ·	guide sleeve travel mm : 3.17
Tolerance cm3/1000 strokes	; 6.0	Tolerance mm : +- 0.25 - Rated speed rpm : 1290 - guide sleeve
Check tolerance cm3/100GS.	: 10.0	travel mm : 11.50 Tolerance mm : +- 0.50
Rated speed rpm	: 250	GUIDE SLEEVE POSITION
Rack travel in mn Tolerance mm Del. quantity		control lever position degree : - 1 Rated speed rpm : 1150
cm3/1000 strokes Tolerance cm3/1000 strokes	-	Rack travel in mm : 9.00 Tolerance mm : + 3.00
Check tolerance cm3/1000s.	: + 5.0	
Spreed Tolerance cm3/1000 strokes	: 7.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 700
Check tolerance cm3/1000s.	: 11.0	- Aneroid pressure - hPa : 1500 - Del. quantity
(B) SETTING OF IN	NJECTION PUMP	- cm3/1000 strokes : 290.0 - Tolerance - cm3/1000 strokes : +- 1.0
WITH GOVERNOR		- cm3/1000 strokes : +- 1.0 - Check tolerance - cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAV	/EL	Spreed Tolerance
Rated speed rpm guide sleeve	: 949	- cm3/1000 strokes : 6.0 - Check tolerance
travel mm Tolerance mm	: 7.39 : + 0.25	- cm3/1000s. : 10.0 L
Rated speed rpm	: 250	

CONTROL LEVER control lever position degree : tolerance degree : +- 4.0 control lever position degree : 119.0 tolerance degree : + 4.0 RATED SPEED 12.45 rack travel mm Rated speed rpm 935 Tolerance 1/min rack travel mm 4.00 1075 Rated speed rpm Tolerance 1/min rack travel mm 0.50 : + 0.50Tolerance mm Rated speed rpm : 1150 LOW IDLE control lever position degree 74.0 tolerance degree : +-4.0 control lever position degree 24.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm 150 CRT mm min. : > 9.00 Testing: 250 Rated speed rpm rack travel mm 7.70 Tolerance mm : + 0.10Rated speed rpm 350 TORQUE CONTROL Rated speed rpm : 700

13.45

: + 0.05

	_
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 13.45 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 10.00 : + 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 200 : 10.30 : + 0.10
Pressure hPa rack travel mm Tolerance mm	: 1090 : 13.15 : +- 0.05
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	
cm3/1000 strokes Check tolerance cm3/1000s.	: + 1.0 : + 4.0

TOM IDTE

Rated speed rpm : 250

Rack travel in mm : 7.70

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : + 3.0

rack travel mm

Tolerance mm

Check tolerance cm3/1000s. : +- 5.0

Spreed
Tolerance
cm3/1000 strokes : 7.0

Check tolerance cm3/1000s. 11.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 : ISO 4113 Test oil

Combination No. : 0 402 646 737

Injection pump

Pump designation : PE6P120A320LS7904 EP type number : 0 412 626 961

Governor

Governer design. : RQV300...1050PA1328K

Governer no. : 0 421 815 546

Cust. part No. : 0422 3933 KY

Customer-spec. information Customer : KHD

Motor : BF6M1015C Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

: 40 temp. °C Tolerance $^{\circ}$ C : + 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 230
Tolerance L/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.05 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

"NW after s.o.d. : 300.00 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 1050

	.L
Rack travel in mm : 13.80	Rated speed rpm : 450
Tolerance mm : +- 0.05	guide sleeve
	travel mm : 3.97
Del. quantity	Tolerance mm : +- 0.25
cm3/1000 strokes : 350.0	†
Talana	Rated speed rpm : 1380
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.0	+ travel mm : 13.50 + Tolerance mm : + 0.50
Check tolerance	1 Toterance mm : + 0.50
cm3/1000s. : +- 4.0	
1.0	GUIDE SLEEVE POSITION
Spreed	+
	}
Tolerance	+ control lever
cm3/1000 strokes : 8.0	position degree : - 1
	Rated speed rpm : 1180
Check tolerance	12.00
cm3/1000s. : 12.0	+ Rack travel in mm : 12.80 + Tolerance mm : +- 2.70
	+ Tolerance mm : +- 2.70
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
The second secon	+
Rack travel in mm: 4.80	Rated speed rpm : 1050
Tolerance mm : +- 0.10	+ Aneroid pressure
Del. quantity	hPa : 1700
cm3/1000 strokes : 23.0	Del. quantity
Tolerance	+ cm3/1000 strokes : 350.0
cm3/1000 strokes : + 3.0	Tolerance 1.0
Check tolerance	+ cm3/1000 strokes : + 1.0
cm3/1000s. : +- 6.0 Spreed	+ Check tolerance + cm3/1000s. : ÷- 4.0
Tolerance	- Spreed
cm3/1000 strokes : 8.0	Tolerance
Check tolerance	- cm3/1000 strokes : 8.0
cm3/1000s. : 12.0	Check tolerance
	- cm3/1000s. : 12.0
	+
(B) SETTING OF INJECTION PUMP	†
WITH GOVERNOR	001700
	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
GOIDE SEELVE TRAVEE	position degree : 122.0
Rated speed rpm : 1092	tolerance degree : +- 4.0
guide steeve	+
travel mm : 9.72	RATED SPEED
Tolerance mm : + 0.15	rack travel mm : 12.80
	Rated speed rpm : 1080
Rated speed rpm : 300	Tolerance 1/min : +- 5
guide sleeve	†
travel mm : 2.74	rack travel mm : 4.00
Tolerance mm : +- 0.20	+ Rated speed rpm : 1215 + Tolerance 1/min : +- 15
Rated speed rpm : 766	T TOLETATIVE TANKET 15
guide sleeve	rack travel mm : 0.50
travel mm : 6.78	Tolerance mm : + 0.50
Tolerance mm : +- 0.25	Rated speed rpm : 1300
	· · · · · · · · · · · · · · · · · · ·

LOW IDLE

control lever

position degree : 78.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.81

Testing:

Rated speed rpm 300 4.80 rack travel mm Tolerance mm : + 0.10

355 Rated speed rpm :

TORQUE CONTROL

1050 Rated speed rpm rack travel mm 13.80 Tolerance mm : +- 0.05

Rated speed rpm 600 11.90 rack travel mm Tolerance mm : +- 0.10

850 Rated speed rpm 13.20 rack travel mm : +- 0.20 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm 1050 Pressure hPa 1700 13.80 rack travel mm Tolerance mm : +- 0.05

Rated speed rpm 1050 Pressure hPa 8.40 rack travel mm Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 1050 Pressure hPa 420 9.10 rack travel mm : +- 0.20 Tolerance mm

830 Pressure hPa rack travel mm 11.80 Tolerance mm : **←** 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1700 Rated speed rpm 600

Del. quantity

cm3/1000 strokes : 353.0

Tolerance

cm3/1000 strokes : +-

Check tolerance

cm3/1000s. : +- 6.0

Aneroid pressure

400 Rated speed rpm

Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +-1.0 Check tolerance

cm3/1000s.

Spreed Tolerance

cm3/1000 strokes : 10.0

Check tolerance

cm3/1000s. 14.0

STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm 8.40 Tolerance mm : +- 0.30

Del. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm Tolerance mm	: :	+	4.80 0.10
Del. quantity cm3/1000 strokes Tolerance	:		23.0
cm3/1000 strokes	:	+	3.0
Check tolerance cm3/1000s.	:	+-	6.0
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		8.0
cm3/1000s.	:		12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.11.97 Test oil : U5.71.97

Combination No. : 0 402 648 707

Injection pump

Pump designation : PE8P12OA32OLS7915

EP type number : 0 412 628 929

Governor

Governer design. : RQ300/1150PA1371

Governer no. : 0 421 801 829

Cust. part No. :

Customer-spec. information

Customer : DHI

Motor : DV15TC Power KW : 272.0

TEST BENCH PEQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40

Tolerance °C : \leftarrow 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : ← 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 5.20 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 16.00

Tolerance mm : + 1.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

: 0-45-90-135-180 Phasing

: -225-270-315

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35 Tolerance mm : +- 0.05

	+ guide steeve
Del. quantity	travel mm : 3.78
cm3/1000 strokes : 220.5	+ Tolerance mm : + 0.10
	- Oceranic min
Tolerance	+ Rated speed rpm : 600
cm3/1000 strokes : + 1.0	guide sleeve
	+ travel mm : 6.00
Check tolerance	+ Tolerance mm : + 0.10
cm3/1000s. : $+-$ 4.0	+
	+ Rated speed rpm : 1380
Spreed	+ guide sleeve
	+ travel mm : 11.50
Tolerance	+ Tolerance mm : +- 0.50
cm3/1000 strokes : 7.0	+
Check tolerance	+ GUIDE SLEEVE POSITION
cm3/1000s. : 10.0	†
	+ control lever
	+ position degree : 109
Rated speed rpm : 300	+ Rated speed rpm : 600
nated speed i pill . Suu	T Nated Speed (pill) . 000
Rack travel in mm : 5.80	Rack travel in mm : 20.00
Tolerance mm : +- 0.10	+ Tolerance mm : +- 0.80
Del. quantity	1
cm3/1000 strokes : 18.0	
Tolerance	+ FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strckes : 3.0	+
Check tolerance	Rated speed rpm : 1150
cm3/1000S. : +- 6.0	+ Aneroid pressure
Spreed	+ hPa : -
Tolerance	+ Del. quantity
cm3/1000 strokes : 5.0	+ cm3/1000 strokes 220.5
Check tolerance	+ Tolerance
cm3/1000s. : 8.0	+ cm3/1000 strokes : +- 1.0
	+ Check tolerance
(D) CETTING OF INTECTION DUMP	+ cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Spreed
WITH GOVERNOR	+ Tolerance + cm3/1000 strokes : 7.0
	+ Check tolerance
GUIDE SLEEVE TRAVEL	- cm3/1000s. : 10.0
TOUR OLDER THINKE	1
Rated speed rpm : 1204	+
guide sleeve	+
travel mm : 6.35	+ CONTROL LEVER
Tolerance mm : + 0.15	+
	+ control lever
Rated speed rpm : 300	+ position degree : 35.0
guide sleeve	+ tolerance degree : +- 4.0
travel mm : 1.29	†
Tolerance mm : +- 0.20	+ control lever
Data dama dama da 1450	position degree : 96.0
Rated speed rpm : 1150	tolerance degree : +- 4.0
guide sleeve	TATES CREES
travel mm : 6.00 Tolerance mm : + 0.10	+ RATED SPEED
Tolerance mm : ← 0.10	+ rack travel mm : 12.60 + Rated speed rpm : 1202
Rated speed rpm : 456	+ Tolerance 1/min : +- 8
Nated Speed I pill . 400	TOCETE TO THE TOTAL O
	1

rack travel mm : 4.90 Rated speed rpm : 1290 Tolerance 1/min : + 15 rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1350 LOW IDLE	Rated speed rpm : 500 Pressure hPa : - rack travel mm : 8.15 Tolerance mm : +- 0.20 2-stage LDA setting Rated speed rpm : 500 Pressure hPa : 600 rack travel mm : 12.40 MEASUREMENT
	Rated speed rpm : 500
control lever position degree : 72.0 tolerance degree : + 4.0	Pressure hPa : 500 rack travel mm : 11.80 Tolerance mm : + 0.20
control lever position degree : 10.0 tolerance degree : +- 4.0 Setting point w/out bumper spring	Pressure hPa : 250 rack travel mm : 9.10 Tolerance mm : + 0.05
Rated speed rpm : 200	Pressure hPa : 900 rack travel mm : 13.90 Tolerance mm : +- 0.20
CRT mm min. :> 7.02 Testing:	Pressure hPa : 725 + rack travel mm : 12.90 + Tolerance mm : +- 0.05
Rated speed rpm : 300 rack travel mm : 5.80 Tolerance mm : +- 0.10	Start interlock
rack travel mm : 2.00 Rated speed rpm : 437 Tolerance 1/min : +- 20	Rated speed rpm : > 205 Rated speed rpm : < 240 Check
TORQUE CONTROL Rated speed rpm : 1150 rack travel mm : 14.35 Tolerance mm : + 0.05	+ speed 1/min : > 185 +
Rated speed rpm : 65G rack travel mm : 14.35 Tolerance mm : +- 0.10	Aneroid pressure hPa : - Rated speed rpm : 650 Del. quantity cm3/1000 strokes : 240.0
ANEROID/ALTITUDE COMPENSATOR TEST SETTING	Tolerance : +- 3.0 Check tolerance cm3/1000s. : +- 6.0
Rated speed rpm : 500 Pressure hPa : 1500 rack travel mm : 14.35 Tolerance mm : + 0.05	Aneroid pressure hPa : - Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 109.0

Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Del. quantity cm3/1000 strokes : 195.0 Tolerance cm3/1000 strokes : + 10.0Check tolerance cm3/1000s.: +- 14.0 LOW IDLE Rated speed rom : 300 5.80 Rack travel in mm : Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 18.0 Tolerance cm3/1000 strokes : \leftarrow 3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.8.0 End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.11.97 : ISO 4113

Combination No. : 0 402 676 823

Injection pump

Pump designation : PE6P12OA32OLS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information

Customer : LIEBHERR

Motor

: D 9406 TI-E A3 : 258.0

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

: 40

temp. °C Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 125 Tolerance l/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : x length mm : 1000

3.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Check

tolerance mm

: +- 0.10

Rack travel in mm : 10.50 Tolerance mm : \leftarrow 1.50

Firing order : 1-6-3-5-2-

. 4

Phasing : 0-60-120-180-240

: -300

Tolerance

: +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 890

Rack travel in mm : 13.75

Tolerance mm : \leftarrow 0.05

Del. quantity

cm3/1000 strokes : 265.0

Tolerance +	Spreed
cm3/1000 strokes : +- 1.0	Tolerance
1	cm3/1000 strokes : 5.0
Check tolerance	Check tolerance
cm3/1000s. : +- 4.0	cm3/1000s. : 9.0
CIID/10003 +- 4.0	CM3/10005. : 9.0
Co	
Spreed +	
Tolerance	CONTROL LEVER
cm3/1000 strokes : 5.0	
<u></u> †	control lever
Check tolerance +	position degree : 106.0
$cm3/1000s$. : 9.0 \pm	tolerance degree : +- 4.0
 	-
+	RATED SPEED
Į.	rack travel mm : 12.50
Rated speed rpm : 400	Rated speed rpm : 930
The speed of pill of the speed of pill of the speed of pill of the speed of pill of the speed of	Tolerance 1/min : +- 5
Rack travel in mm: 5.00	TO COT GITTO TABILITY OF THE STATE OF THE ST
Tolerance mm : +- 0.10	rack travel mm : 4.00
Del. quantity	Rated speed rpm : 1005
cm3/1000 strokes : 26.0	Tolerance 1/min : +- 15
Tolerance	
cm3/1000 strokes : +- 3.0 +	rack travel mm : 0.85
Check tolerance +	Tolerance mm : +- 0.55
cm3/1000s. : +- 6.0	Rated speed rpm : 1200
Spreed +	
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 6.0	Rated speed rpm : 1015
Check tolerance	Tolerance 1/min : +- 15
cm3/1000s. : 10.0	
1	
<u>±</u>	
+	
(B) SETTING OF INJECTION PUMP	I OU TO E
+	LOW IDLE
(B) SETTING OF INJECTION PUMP	LOW IDLE
(B) SETTING OF INJECTION PUMP	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION	control lever position degree : 87.
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION	control lever position degree : 57 0 tolerance degree : +- 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever	control lever position degree : 87.
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3	control lever position degree : 57 0 tolerance degree : + 4.0 Setting point w/out bumper spring
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever	control lever position degree : 57 0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 87 0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50	control lever position degree : 57 0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 87 0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50	control lever position degree : 87 0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50	control lever position degree : \$7.0 tolerance degree : + 4.0 Setting noint w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 87 0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10 Testing:
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50	control lever position degree : \$7.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : \$7.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890	control lever position degree : \$7.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure	control lever position degree : 87 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400	control lever position degree : 87 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10 rack travel mm : 2.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity	control lever position degree : 87
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0	control lever position degree : 87 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10 rack travel mm : 2.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0 Tolerance	control lever position degree : 87
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0 Tolerance cm3/1000 strokes : + 1.0	control lever position degree : \$7.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10 rack travel mm : 5.00 Tolerance mm : +- 0.10 rack travel mm : 2.00 Rated speed rpm : 515 Tolerance 1/min : +- 30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : + 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	control lever position degree : \$7.5 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack trave: mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : 5.00 Tolerance mm : 5.00 Tolerance mm : 2.00 Rated speed rpm : 2.00 Rated speed rpm : 515 Tolerance 1/min : +- 30
(B) SETTING OF INJECTION PUMP WITH GOVERNOR GUIDE SLEEVE POSITION control lever position degree : - 3 Rated speed rpm : 800 Rack travel in mm : 0.50 Tolerance mm : +- 0.20 FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 890 Aneroid pressure hPa : 1400 Del. quantity cm3/1000 strokes : 265.0 Tolerance cm3/1000 strokes : +- 1.0	control lever position degree : \$7.5 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10 Testing: Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : +- 0.10 rack travel mm : 5.00 Tolerance mm : 2.00 Rated speed rpm : 515 Tolerance 1/min : +- 30

rack travel mm Tolerance mm		Del. quantity cm3/1000 strokes : 272.0
Rated speed rpm rack travel mm Tolerance mm	: 500 : 13.75 : +- 0.10	Tolerance cm3/1000 strokes : + 3.0 Check tolerance
Rated speed rpm		cm3/1000s. : +- 6.0
rack travel mm Tolerance mm	: 13.75	Aneroid pressure hPa : - Rated speed rpm : 500
ANEROID/ALTITUDE COMPENSATOR TEST		Del. quantity cm3/1000 strokes : 230.0 Tolerance
SETTING		+ cm3/1000 strokes : +- 1.0 + Check tolerance + cm3/1000s. : +- 4.0
		+ Spreed
Rated speed rpm Pressure hPa	: 500 : 1400	+ Tolerance + cm3/1000 strokes : 8.0
rack travel mm	: 13.75	+ Check tolerance
Tolerance mm	: +- 0.10	cm3/1000s. : 12.0
Rated speed rpm	: 500	-
Pressure hPa	: – : 11.90	STARTING FUEL DELIVERY
rack travel mm Tolerance mm	: +- 0.20	+
MEASUREMENT		+ ESS test: With 24 V solenoid activated, + rack must reach start position in max. + control lever setting.
Rated speed rpm	: 500	to tever setting.
Pressure hPa	: 870	† +
rack travel mm	: 13.40	Rated speed rpm : 100
Tolerance mm	: +- 0.05	rack travel mm : 20.50 Tolerance mm : +- 0.50
Pressure hPa	: 740	† Del. quantity
rack travel mm Tolerance mm	: 12.50 : +- 0.10	+ cm3/1000 strokes : 220.0 + Tolerance
, Jeo. Milet Hall	0.10	+ cm3/1000 strokes : +- 15.0
	·	
FUEL DELIVERY CHA	ARACTERISTICS	T 01115/10003 = 19.0
		-
Aneroid pressure hPa	: 1400	LOW IDLE
Rated speed rpm	: 500	+ 10W 10LE
Del. quantity		Rated speed rpm : 400
cm3/1000 strokes Tolerance	: 280.0	+ Rack travel in mm : 5.00
cm3/1000 strokes	: ← 3.0	Tolerance mm : +- 0.10
Check tolerance cm3/1000S.	: +- 6.0	+ Del. quantity + cm3/1000 strokes : 26.0
		+ Tolerance + cm3/1000 strokes : +- 3.0
Aneroid pressure	4.05	Check tolerance
hPa Rated speed rpm	: 1400 : 700	+ cm3/1000s. : +- 6.0 + Spreed
		$oldsymbol{\perp}$

Tolerance

cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0

: 10.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 21.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 676 8230

Injection pump

Pump designation : PE6P120A320LS7885-1

EP type number : 0 412 626 948

Governor

Governer design. : RSV400...1000P1A589

Governer no. : 0 421 833 449

Cust. part No. : 9881286

Customer-spec. information Customer : LIEBHERR

Motor : D 9406 TI-E A3 Power KW : 258.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C 40 : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Tolerance l/h: + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-6-3-5-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +-- 0.75

BASIC SETTING

Rated speed rpm : 890

Rack travel in mm : 13.75

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 265.0

Tolerance

cm3/1000 strokes : \leftarrow 1.0

Check tolerance cm3/1000S.	: + 4.0	
Spreed		CONTROL LEVER
opi ccu	I	control lever
Tolerance cm3/1000 strokes	: 5.0	position degree : 106.0
Check tolerance cm3/1000S.	: 9.0	RATED SPEED rack travel mm : 12.75 Rated speed rpm : 930 Tolerance 1/min : +- 5
Rated speed rpm	: 400	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1200
Rack travel in mm	: 5.00	Nated Speed 1 pm . 1200
Tolerance mm Del. quantity		rack travel mm : 4.00 Rated speed rpm : 1015
cm3/1000 strokes Tolerance	+	Tolerance 1/min : +- 15
cm3/1000 strokes Check tolerance	1	
cm3/1000S. Spreed	: +- 6.0	LOW IDLE
Tolerance cm3/1000 strokes Check colerance	: 6.0	control iever
cm3/1000s.	: 10.0	position degree : 83.0
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP	Setting point w/out bumper spring Rated speed rpm : 400 rack travel mm : 3.50 Tolerance mm : +- 0.10
GUIDE SLEEVE POSIT	TION	Testing:
control lever position degree	: - 3	Rated speed rpm : 400 rack travel mm : 5.00 Tolerance mm : + 0.10
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	TORQUE CONTROL Rated speed rpm : 890
Rated speed rpm Aneroid pressure	: 890	rack travel mm : 13.75 Tolerance mm : + 0.05
nPa Del. quantity	: 1400	Rated speed rpm : 500
cm3/1000 strokes Tolerance	+	rack travel mm : 13.75 Tolerance mm : +- 0.10
cm3/1000 strokes Check tolerance	+	Rated speed rpm : 700
cm3/1000S. Spreed Tolerance	: + 4.0	rack travel mm : 13.75 Tolerance mm : +- 0.30
cm3/1000 strokes	: 5.0	ANEROID/ALTITUDE
Check tolerance		

SETTING

Rated speed rpm 500 Pressure hPa 1400 13.75 rack travel mm Tolerance mm : + 0.10

Rated speed rpm 500 Pressure hPa 11.90 rack travel mm Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm 500

870 Pressure hPa 13.40 rack travel mm Tolerance mm : **←** 0.05

Pressure hPa 740 rack travel mm 12.50 : + - 0.10Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1400 hPa 500 Rated speed rpm Del. quantity cm3/1000 strokes : 280.0

Tolerance cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. 6.0

Aneroid pressure

1400 hPa Rated speed rpm 700 Del. quantity

cm3/1000 strokes : 272.0

Tolerance

cm3/1000 strokes : + 3.0 Check tolerance

: +cm3/1000s.6.0

Aneroid pressure

hPa 500 Rated speed rpm Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +-4.0 Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm : +- 0.50 Tolerance mm Del. quantity

cm3/1000 strokes : 220.0

Tolerance cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s.: +- 14.0

LOW IDLE

Rated speed rpm : 400

5.00 Rack travel in mm : Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 26.0

Toterance

cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0

: +-

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. 10.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

: 25.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 738 800

Injection pump

Pump designation : PES8P130A720/3LS7443

EP type number : 0 412 738 801

Governor

Governer design. : RQV350...900PA1359

Governer ro. : 0 421 814 202

Cust. part No. :

Customer-spec. information

Customer : FINCANTIERI Motor : V1708T2-SPE Power KW : 815.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 : +- 2.0 40 Tolerance °C

Overflow vaive : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 160 Tolerance l/h : ← 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3
x length mm : 1000 3.0

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +-1.50

Firing order : 1-2-6-3-4-5-7-8

Phasing : 0-45-90-135-180-225

: -270-315

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.80 Tolerance mm : \leftarrow 0.05

Del. quantity cm3/1000 strokes : 420.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

: +- 5.0 cm3/1000s.

	+ Rated speed rpm : 1010
Spreed	+ Rack travel in mm : 13.80
Tolerance cm3/1000 strokes : 6.0	Tolerance mm : +- 1.30
Check tolerance cm3/1000s. : 10.5	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 900 Aneroid pressure hPa : 900
Rated speed rpm : 350	Del. quantity cm3/1000 strokes : 420.0
Rack travel in mm: 4.40 Tolerance mm: + 0.10	Tolerance cm3/1000 strokes : +- 1.0
Del. quantity cm3/1000 strokes : 25.0 Tolerance	- Check tolerance - cm3/1000S. ; +- 5.0 - Spreed
cm3/1000 strokes : + 3.0 Check tolerance	Tolerance cm3/1000 strokes : 6.0
cm3/1000s. : + 7.0 Spreed Tolerance	- Check tolerance - cm3/1000S. : 10.5
cm3/1000 strokes : 9.5 Check tolerance	
cm3/1000s. : 13.0	+ CONTROL LEVER
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	<pre>control lever position degree : 117.0 tolerance degree : +- 4.0</pre>
GUIDE SLEEVE TRAVEL	RATED SPEED + rack travel mm : 13.80
Rated speed rpm : 958 guide sleeve	+ Rated speed rpm : 945 + Tolerance 1/min : +- 5
travel mm : 8.29 Tolerance mm : + 0.15	rack travel mm : 4.00 Rated speed rpm : 1065
Rated speed rpm : 350 guide sleeve	Tolerance 1/min : +- 15 + rack travel mm : 0.50
travel mm : 2.31 Tolerance mm : + 0.20	+ Tolerance mm : +- 0.50 + Rated speed rpm : 1150
Rated speed rpm : 690 guide sleeve	+
travel mm : 5.08 Tolerance mm : +- 0.25	LOW IDLE
Rated speed rpm : 1160 guide sleeve	control lever
travel mm : 11.50 Tolerance mm : + 0.50	<pre>position degree : 65.0 tolerance degree : + 4.0</pre>
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
	Rated speed rpm : 200
control lever position degree : - 1	+ CRT mm min. : > 6.00

Testing:

Rated speed rpm : 350 rack travel mm : 4.40 Tolerance mm : + 0.10

Rated speed rpm : 415

TORQUE CONTROL

Rated speed rpm : 900 rack travel mm : 14.80 Tolerance mm : +- 0.05

Rated speed rpm : 500 rack travel mm : 14.85 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 900
rack travel mm : 14.80
Tolerance mm : + 0.05

Rated speed rpm : 600
Pressure hPa : rack travel mm : 10.00
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 250 rack travel mm : 10.90 Tolerance mm : + 0.20

Pressure hPa : 320 rack travel mm : 12.60 Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 319.0

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 5.0

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated, rack must reach start position in max. control lever setting.

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +- 0.50

LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 4.40
Tolerance mm: +- 0.10
Del. quantity
cm3/1000 strokes: 25.0
Tolerance
cm3/1000 strokes: +- 3.0
Check tolerance
cm3/1000s.: +- 7.0
Spreed
Tolerance
cm3/1000 strokes: 9.5

Check tolerance cm3/1090S. : 13.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 04.11.97 raition Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump

Pump designation : PES6P120A320RS7449 EP type number : 0 412 726 974

Governor

Governer design. : RQ275/1050PA1372 Governer no. : 9 421 801 830

Cust. part No. :

Customer-spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 B41
Power KW : 186.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 320 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.70 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.25 Tolerance mm : +- 0.75

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance $^{\circ}NW$: +- 0.75

Start of delivery mark

*NW after s.o.d. : -1.45

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50 Tolerance mm : +- 0.05

		† guide sleeve
BASIC SETTING		- + travel mm : 6.00 + Tolerance mm : +- 0.10
Rated speed rpm	: 600	Rated speed rpm : 388
Del. quantity cm3/1000 strokes	: 193.0	travel mm : 4.42 Tolerance mm : + 0.10
Tolerance cm3/1000 strokes	: + 1.0	Rated speed rpm : 480 guide sleeve
Check tolerance cm3/1000s.	: +- 4.0	travel mm : 6.00 Tolerance mm : +- 0.10
Spreed		+ Rated speed rpm : 1330 + guide sleeve + travel mm : 11.50
Tolerance cm3/1000 strokes	: 5.0	Tolerance mm : +- 0.50
Check tolerance cm3/1000s.	: 9.0	GUIDE SLEEVE POSITION
		† control lever position degree : 109
Rated speed rpm	: 275	Rated speed rpm : 600
Rack travel in mm Tolerance mm Del. quantity		Rack travel in mm : 20.00 Tolerance mm : + 0.80
cm3/1000 strokes Tolerance cm3/1000 strokes		FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance cm3/1000s.	: +- 5.0	Rated speed rpm : 600 Aneroid pressure
Spreed Tolerance		+ hPa : 1000 + Del. quantity
cm3/1000 strokes Check tolerance cm3/1000s.		+ cm3/1000 strokes : 193.0 + Tolerance + cm3/1000 strokes : +- 1.0
(B) SETTING OF IN	LIFCTION PUMP	Check tolerance cm3/1000s. : +- 4.0 Spreed
WITH GOVERNOR		Tolerance cm3/1000 strokes : 5.0
GUIDE SLEEVE TRAV	/EL	+ Check tolerance + cm3/1000S. : 9.0
Rated speed rpm guide sleeve		<u> </u>
travel mm Tolerance mm	: 6.37 : + 0.15	CONTROL LEVER control lever
Rated speed rpm guide sleeve	: 275	position degree : 273.0 tolerance degree : + 4.0
travel mm Tolerance mm	: 1.52 : + 0.20	+ RATED SPEED + rack travel mm : -1.00
Rated speed rpm	: 1050	Rated speed rpm : 1120 Tolerance 1/min : +- 5

rack travel mm : -8.50 Rated speed rpm : 1220 Tolerance 1/min : +- 15

rack travel mm : -12.00Tolerance mm : +0.50Rated speed rpm : 1350

LOW IDLE

control Lever

position degree : 253.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > -4.00

Testing:

Rated speed rpm : 275 rack travel mm : -6.80Tolerance mm : +0.10

rack travel mm : -10.50 Rated speed rpm : 375 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050 Tolerance mm: + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500 Pressure hPa : 1000

500 Rated speed rpm : Pressure hPa ---

-2.00 rack travel mm : : +- 0.20 Tolerance mm

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320 rack travel mm : -0.85 Tolerance mm : + 0.15

Start interlock

Rated speed rpm :> 100 Rated speed rpm : < 195

Check

speed 1/min :> 80 Check

speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 1000 Rated speed rpm : 1050

Del. quantity

cm3/1000 strokes : 198.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000S. : +- 6.0

Aneroid pressure

hPa Rated speed rpm : 500 Del. quantity

cm3/1000 strokes : 147.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

: +- 19.0 cm3/1000s.

LOW IDLE

Rated speed rpm : 275 Rack travel in mm: -6.80 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 31.0 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s.5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 04.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 746 638

Injection pump

Pump designation : PES6P120A320RS7449

EP type number : 0 412 726 974

Governor

Governer design. : RQ275/1050PA1373 Governer no. : 0 421 801 831

Cust. part No. :

Customer—spec. information

Customer : RENAULT V.I. : MI7RO62045 C41 Motor

Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance $^{\circ}$ C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 220 Tolerance l/h : +- 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.70 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.25 Tolerance mm : \leftarrow 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : + 0.75

Start of delivery mark

 $^{\circ}$ NW after s.o.d. : -0.95

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70 Tolerance mm : +- 0.05	+ Rated speed rpm : 1050 + guide sleeve + travel mm : 6.70
BASIC SETTING	Tolerance mm : + 0.10
Rated speed rpm : 1050	Rated speed rpm : 668 guide sleeve travel mm : 6.18
Del. quantity cm3/1000 strokes : 176.0	Tolerance mm : +- 0.10 Rated speed rpm : 377
Tolerance cm3/1000 strokes : + 1.0	guide sleeve travel mm : 5.00 Tolerance mm : +- 0.10
Check tolerance cm3/1000s. : +- 4.0	Rated speed rpm : 460
Spreed	<pre>+ guide sleeve + travel mm : 6.00 + Tolerance mm : +- 0.10</pre>
Tolerance cm3/1000 strokes : 5.0	+ Rated speed rpm : 1310 + guide sleeve
Check tolerance cm3/1000s. : 9.0	travel mm : 11.50 Tolerance mm : + 0.50
Rated speed rpm : 275	Rated speed rpm : 874 guide sleeve travel mm : 6.52
Rack travel in mm: -6.10	+ Tolerance mm : +- 0.10
Tolerance nm : + 0.10 Del. quantity cm3/1000 strokes : 28.0 Tolerance	GUIDE SLEEVE POSITION
cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s. : +- 5.0	control lever position degree : 109 Rated speed rpm : 1050
Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	+ Rack travel in mm : 20.00 + Tolerance mm : + 0.80 +
cm3/1000s. : 12.0	FULL LOAD DELIVERY AT FULL LOAD STOP
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	Rated speed rpm : 1050 Aneroid pressure hPa : 1000
	Aneroid pressure hPa: 1000 Del. quantity cm3/1000 strokes: 176.0
WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 1125 guide sleeve	Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 176.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
GUIDE SLEEVE TRAVEL Rated speed rpm : 1125	Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 176.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed
WITH GOVERNOR GUIDE SLEEVE TRAVEL Rated speed rpm : 1125 guide sleeve travel mm : 7.06	Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 176.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0

CONTROL I SUSS	
CONTROL LEVER	
control lever position degree tolerance degree	: 275.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: −1.00 : 1115 : ← 5
rack travel mm Rated speed rpm Tolerance 1/min	: -7.70 : 1205 : + 15
rack travel mm Tolerance mm Rated speed rpm	: -11.20 : + 0.50 : 1350
LOW IDLE	
COW IDEE	
control lever	: 255.0 : + 4.0
control lever	: + 4.0
control lever position degree tolerance degree	: + 4.0 ut bumper spring
control lever position degree tolerance degree Setting point w/o	: + 4.0 ut bumper spring
control lever position degree tolerance degree Setting point w/o Rated speed rpm	: + 4.0 ut bumper spring : 200
control lever position degree tolerance degree Setting point w/or Rated speed rpm CRT mm min.	: + 4.0 ut bumper spring : 200
control lever position degree tolerance degree Setting point w/of Rated speed rpm CRT mm min. Testing: Rated speed rpm rack travel mm Tolerance mm	: + 4.0 ut bumper spring : 200 : > -4.30 : 275 : -6.10
control lever position degree tolerance degree Setting point w/or Rated speed rpm CRT mm min. Testing: Rated speed rpm rack travel mm Tolerance min Rated speed rpm	: + 4.0 ut bumper spring : 200 : > -4.30 : 275 : -6.10 : +- 0.10 : 2.00 : 367

SETTING				
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1000 : 1.00 : + 0.10			
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : -1.00 : +- 0.20			
MEASUREMENT				
Rated speed rpm	: 500			
Pressure hPa rack travel mm Tolerance mm	: 280 : 0.65 : +- 0.15			
Pressure hPa rack travel mm Tolerance mm	: 160 : -0.15 : +- 0.05			
Start interlock				
Rated speed rpm Rated speed rpm	: > 100 : < 195			
Check speed 1/min Check speed 1/min	: > 80 : < 215			
FUEL DELIVERY CHARACTERISTICS				
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1000 : 600 : 193.0 : +- 3.0 : +- 6.0			
Aneroid pressure				

ANEROID/ALTITUDE COMPENSATOR TEST

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s.: **←** 19.0

LOW IDLE

275 Rated speed rpm :

Rack travel in mm : -6.10: +- 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 28.0

Tolerance

2.0 cm3/1000 strokes : +-

Check tolerance

cm3/1000s.: + 5.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000S.12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 03.11.97 : ISO 4113

Combination No. : 0 402 746 639

Injection pump

Pump designation : PES6P120A320RS7359

: -3

EP type number

: 0 412 726 975

Governor

Governer design. : RQ275/1050PA1217-2

Governer no. : 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer : RENAULT V.I.

Motor

: MIDRO62045 J41

Power KH

: 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.80 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.25

Tolerance mm : \leftarrow 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.45 Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm: 13.40

Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 600	‡ Tolerance mm : +- 0.10
	Rated speed rpm : 400
Tolerance mm : +- 0.05	f guide sleeve travel mm : 4.82
Del. quantity cm3/1000 strokes : 285.0	Tolerance mm : +- 0.10
Tolerance	Rated speed rpm : 480 guide sleeve
cm3/1000 strokes : + 1.0 Check tolerance	travel mm : 6.00 Tolerance mm : + 0.10
cm3/1000s. : +- 4.0	Rated speed rpm : 1330 guide sleeve
Spreed	† travel mm : 11.50
Tolerance cm3/1000 strokes : 5.0	Tolerance mm : +- 0.50
Check tolerance	GUIDE SLEEVE POSITION
cm3/1000s. : 9.0	+
	+ control lever - position degree : 109
	Rated speed rpm : 600
Rated speed rpm : 275	+
Deal Americal Street, and C. 00	+ Rack travel in mm : 20.00
Rack travel in mm : -6.90 Tolerance mm : +- 0.10 Del. quantity	+ Tolerance mm : +- 0.80
cm3/1000 strokes : 27.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes : +- 2.0	+ Rated speed rpm : 600
Check tolerance	+ Aneroid pressure
$cm3/1000s.$: \leftarrow 5.0	+ h₽a : 1000
Spreed	+ Del. quantity
Tolerance cm3/1000 strokes : 8.0	+ cm3/1000 strokes : 285.0
Check tolerance	+ Tolerance + cm3/1000 strokes : +- 1.0
cn:3/1000s. : 12.0	Check tolerance
	+ cm3/1000S. : +- 4.0
	Spreed
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	cm3/1000 strokes : 5.0 Check tolerance
	+ cm3/1000s. : 9.0
GUIDE SLEEVE TRAVEL	1
Rated speed rpm : 1129	
guide sleeve travel mm : 6.36	† CONTROL LEVER
Tolerance mm : +- 0.15	T control lever
roterance many	position degree : 275.0
Rated speed rpm : 275 guide sleeve	tolerance degree : +- 4.0
travel mm : 1.52	RATED SPEED
Tolerance mm : +- 0.20	+ rack travel mm : −1.00
2050	+ Rated speed rpm : 1115
Rated speed rpm : 1050 guide sleeve	+ Tolerance 1/min : +- 15
travel mm : 6.00	+ rack travel nnu : −9.40

Rated speed rpm : 1225 Pressure hPa 520 Tolerance $1/\min$: +- 15 rack travel mm -0.60: + 0.15Tolerance mm rack travel mm : -12.90 Tolerance mm : +- 0.50 Pressure hPa 240 Rated speed rpm : 1350 rack travel mm -2.20Tolerance mm : +- 0.05 Start interlock LOW IDLE Rated speed rpm : > 100 Rated speed rpm : < 195 control lever position degree : 254.0 Check tolerance degree : +- 4.0 speed 1/min : > 80 Check Setting point w/out bumper spring speed 1/min 215 ; < Rated speed rpm : 175 FUEL DELIVERY CHARACTERISTICS CRT mm min. : > -4.68 Testing: Aneroid pressure 1000 Rated speed rpm 275 Rated speed rpm : 1050 -6.90 rack travel mm Del. quantity Tolerance mm : + 0.10cm3/1000 strokes : 293.0 Tolerance rack travel mm 2.00 cm3/1000 strokes : +-3.0 Rated speed rpm 387 Check tolerance Tolerance 1/min cm3/1000s.: +--6.0 TORQUE CONTROL Aneroid pressure Rated speed rpm : 600 Tolerance mm : + 0.05 Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 150.0 : 1050 Rated speed rpm Tolerance mm : + 0.10 Tolerance cm3/1000 strokes : +-1.0 Check tolerance ANEROID/ALTITUDE cm3/1000s.: +-4.0 COMPENSATOR TEST STARTING FUEL DELIVERY SETTING Rated speed rpm : 500 Rated speed rpm : 100 Pressure hPa 1000 Del. quantity cm3/1000 strokes : 145.0 500 Rated speed rpm Tolerance Pressure hPa cm3/1000 strokes : +- 15.0rack travel mm -2.85Check tolerance cm3/1000s. : + 19.0Tolerance mm : +- 0.20 **MEASUREMENT**

LOW IDLE

K03

Rated speed rpm :

500

Rated speed rpm	:	275
Rack travel in mm Tolerance mm Del. quantity	: : +	-6.90 0.10
cm3/1000 strokes Tolerance	:	27.0
cm3/1000 strokes Check tolerance	: +-	2.0
cm3/1000s. Spreed	: +-	5.0
Tolerance cm3/1000 strokes Check tolerance	:	8.0
cm3/1000s.	:	12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 10.11.97 Test oil : ISO 4113

Combination No. : 0 402 746 655

Injection pump

Pump designation : PES6P12OA32ORS7343 EP type number : 0 412 726 915

Governor

Governer design. : RQV300...1000PA1160

: -1K

Governer no. : 0 421 815 559

Cust. part No. :

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 062356 B41

Power KW : 288.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.50
Tolerance mm : +- 0.05
Check

tolerance mm : +- 0.10

Rack travel in mm : 11.00 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.40

Tolerance : +- 0.50 Check

tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

mm : 21.00 and maximum rack

travel : 11.00

Difference ° CS : 2.25

CRT ZERO POSITION

-	├ Tolerance mm : +- 0.20
Rack travel in mm: 12.80 - Tolerance mm: + 0.05	+ Rated speed rpm : 827 + guide sleeve + travel mm : 5.95
	Tolerance mm : + 0.25
BASIC SETTING -	† + Rated speed rpm : 550
Rated speed rpm : 1000	+ Rated speed rpm : 550 + guide sleeve + travel mm : 3.66
Del. quantity - cm3/1000 strokes : 350.0 -	Tolerance mm : + 0.25
Tolerance - 1.0	+ Rated speed rpm : 1440 + guide sleeve + travel mm : 13.50
Check tolerance - 4.0 -	Tolerance mm : +- 0.50
cm3/1000S. : +- 4.0	GUIDE SLEEVE POSITION
Spreed	40102 022272 100171017
Tolerance - cm3/1000 strokes : 5.0 -	control lever position degree : - 1
	Rated speed rpm : 1293
Check tolerance	+ Rack travel in mm : 11.80 + Tolerance mm : +- 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: -7.60 Tolerance mm: +- 0.10	Rated speed rpm : 1000 Aneroid pressure
Del. quantity - cm3/1000 strokes : 38.0 -	├ hPa : 1200 ├ Del. quantity
Tolerance -	cm3/1000 strokes : 350.0
cm3/1000 strokes : + 1.5	Tolerance
Check tolerance - cm3/1000S. : +- 5.0 -	+ cm3/1000 strokes : +- 1.0 - Check tolerance
Spreed	cm3/1000s. : +- 4.0
Tolerance	- Spreed
cm3/1000 strokes : 8.0 - Check tolerance -	+ Tolerance + cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	+ Check tolerance
-	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR -	CONTROL LEVER
	+ CONTROL ZEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1113	+ position degree : 294.0 + tolerance degree : +- 4.0
guide sleeve - travel mm : 8.82 -	†
Tolerance mm : + 0.15	rack travel mm : -1.00
	Rated speed rpm : 1100
Rated speed rpm : 300 - guide sleeve	Tolerance 1/min : +- 5
travel mm : 1.29	rack travel mm : -8.80

Rated speed rpm : 1205 Tolerance $1/\min$: +- 15 rack travel mm : -12.30 Tolerance mm : \leftarrow 0.50 Rated speed rpm : 1300 LOW IDLE control lever position degree : 250.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 200 CRT mm min. : > -6.00Testing: Rated speed rpm : rack travel mm : 300 -7.60Tolerance mm : ← 0.10 Rated speed rpm : 390 TORQUE CONTROL Rated speed rpm : 1000 Rated speed rpm : 600 rack travel mm : -0.45 Tolerance mm : +-0.15Rated speed rpm : 800 rack travel mm : 0.10 : +- 0.15 Tolerance mm Rated speed rpm : 350 rack travel mm : -1.70 Tolerance mm : +- 0.30 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1000 Pressure hPa : 1200 Rated speed rpm : 1000

Tolerance mm : \leftarrow 0.30 MEASUREMENT Rated speed rpm : 1000 Pressure hPa : rack travel mm : 320 : -2.80 Tolerance mm : + 0.15 Pressure hPa : 520 rack travel mm : -1.70 Tolerance mm : +- 0.05 Start interlock Rated speed rpm : > 100 Rated speed rpm : < 225 Check speed 1/min :> 80 Check speed 1/min : < 245 FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1200 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 381.0 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s. : +- 6.0 Aneroid pressure Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 245.0 Tolerance cm3/1000 strokes : +- 1.0Check tolerance cm3/1000s. 4.0 STARTING FUEL DELIVERY Rated speed rpm : rack travel mm : 20.25 100

Tolerance mm

cm3/1000 strokes : 185.0

Del. quantity

: ← 0.75

Pressure hPa : - rack travel mm : -3.90

Tolerance cm3/1000 strokes : +- 15.0 Check tolerance

Check tolerance

cm3/1000s. : +- 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm: -7.60
Tolerance mm: + 0.10
Del. quantity

cm3/1000 strokes : 38.0

Tolerance

cm3/1000 strokes : +- 1.5

Check tolerance

cm3/1000s. : + 5.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 24.11.97

: ISO 4113

Combination No. : 0 402 795 201

Injection pump

Pump designation : PES5H120/720/3LS1002

EP type number : 0 412 725 201

Governor

Governer design. : RE33

Governer no.

: 0 421 890 354

Cust. part No. : 51.11103-7254

Customer-spec. information

Customer : MAN

Motor

: D2865LF09

TEST BENCH REQUIREMENTS

Inlet line

: 4.1 EHAB

Test oil inlet

temp. °C

Tolerance °C

Overflow valve : 2 417 413 082

Inlet press. bar :

3.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 089

Outside diameter :

8.0

x inside diameter : 3.0 x length mm 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting. Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 10.00 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 : +- 0.50 Tolerance mm

: 1-3-5-4-2 Firing order

Phasing : 0-72-144-216-288

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR POSITION

Engine speed min-1:

Setting point

(P, R and H pump)

Uact V

3.100 :

CRT mm	: 13.00	L	ENGINE-SPEED SENS	A.B.
Tolerance mm		T		
	: +/- 0.03	†	(ALL P and R pump	s not
Check		+	H and M pumps)	
tolerance mm	: +/- 0.10	+		
		+	Test with control	rod
Check value		1	in stop position	
(P, R and H pump)		1	in beop position	
Cr / It aile it pullips		Ţ	Frankus sandal min	4. 70
		†	Engine speed min-	
		+	Amplitude V	: 1.4
Uact V	: 1.700 : 6.15	+	Tolerance V	: +/- 0.6
CRT mm	: 6.15	1	Check	
Tolerance mm		1	tolerance V	: +/- 1.20
Check	. ,	- 1	total drice v	. '/ 1.20
	/ . 0. 70	T		4 (00
tolerance mm	: +/- 0.30	+	Engine speed min-	1: 600
		+	Difference	
		1	Amplitude to	
Setting point		1	Amplitude V	· max 1 4
(M pump)		1	/impereade v	
(it pailp)		T		
	7 400	+		
Uact V	: 3.100	+		
CRT mm	: 12.50	+	(C) INJECTION PUM	P WITH POSITIONER
Tolerance mm	: +/- 0.05	+		
Check		1	TEST POINT V1	
tolerance mm	: +/- 0.10	1	1231 101111 11	
cocer ance min	. 17-0.10	T	6	750
		t	Rated speed rpm	
Check value		+	Uact V	: 3.350
(gmuq M)		+	Prestroke solenci	d
• •		1	Stroke mm	
Uact V	: 1.700	1	Del. quantity	. ,0.00
	. 1.700	T		772.0
CRT mm	: 5.50	+	cm3/1000 strokes	: 332.0
Tolerance mm	: +/- 0.25	+	Tolerance	
Check		+	cm3/1000 strokes	: +- 1.0
tolerance mm	: +/- 0.30	į.	Check tolerance	
		1	cm3/1000s.	
Stop position				• • • • • •
		Ť	Spreed	
(P, R and H pump)		+	Tolerance	
		+	cm3/1000 strokes	: 5.0
Uact V	: Value with	+	Check tolerance	
deener	rgised adjusting magnet	1	cm3/1000s.	: 9.0
4.00.00	and control rod in	1	FUEL DELIVERY CHA	
		T	TOLL DELIVERY CHA	RACIERISTICS
007	stop position.	Ť		
CRT mm	: 0.75	t		
Tolerance mm	: +/- 0.25	+	Rated speed rpm	: 1000
Check		+	Uact V	: 3.290
tolerance mm	: +/- 0.35	1	Prestroke solenoi	d
		1	Stroke mm	: 8.00
Stan position		1		. 0.00
Stop position		Ť	Del. quantity	700.0
(m pump)		+	cm3/1000 strokes	: 309.0
Uact V	: 0,720	+	Check tolerance	
Tolerance Volt	: +- 0,065	+	cm3/1000s.	: +- 6.0
CRT mm	: 1,00	1	Spreed	
	.,,,,	1	Tolerance	
Odantina manitian		Ţ		
Starting position		+	cm3/1000 strokes	: 8.0
(M pump)		+	Check tolerance	
Uact V	: 4,500	+	cm3/1000s.	: 12.0
Tolerance Volt	: + 0,115	+		
CRT mm	: 19,00	1		
Tolerance mm	: +- 0,80	}	Dated chard nom	: 500
rocerance mm	. — 0,00	Ť	Rated speed rpm	
		+	Uact V	: 2.900

Prestroke solenoi Stroke mm Del. quantity cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	9.20 : 9.20 : 304.0 : +- 6.0 : 8.0 : 12.0
Rated speed rpm Uact V Prestroke solenoi Stroke mm Del. quantity cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 500 : 2.100 d : 6.20 : 168.0 : + 6.0 : 8.0 : 12.0
Rated speed rpm Uact V Prestroke solenoi Stroke mm Del. quantity cm3/1000 strokes Check tolerance cm3/1000s.	: 750 : 1.450 d : 10.00 : 65.0 : +- 6.0
Rated speed rpm Uact V Tolerance Volt Check tolerance Volt Prestroke solenoi Stroke mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 7.20 : 30.0

Check tolerance cm3/1000s.	: +-	12.0	
cm3/1000 strokes	:	173.0	
	:	7.00	
Uact V Prestroke solenoi	: d	2.450	

End of test specification sheet

Rated speed rpm : 100

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.11.97 Test oil : ISO 4113

Combination No. : 0 402 846 054

Injection pump

Pump designation : PE6P120A320RS8017 EP type number : 0 412 826 018

Governor

Governer design. : RQV300...1100PA1017

: -1

Governer no. : 0 421 814 023

Cust. part No. : 3826087 P03 v.10/97

Customer-spec. information

Customer : PENTA Motor

: TWD 1030 VE

Power KW

: 212.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 76.0 Tolerance bar : +- 1.0

Prestroke mm : 4.15 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 7.80 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.05

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 205.0	Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 435 guide sleeve travel mm : 2.45
Check tolerance	Tolerance mm : + 0.25
cm3/1000S. : + 4.0 Spreed	Rated speed rpm : 530 guide sleeve travel mm : 3.11
Tolerance	Tolerance mm : + 0.25
cm3/1000 strokes : 8.0	Rated speed rpm : 1400 guide sleeve
Check tolerance cm3/1000s. : 11.0	travel mm : 11.50 Tolerance mm : +- 0.50
Rated speed rpm : 300	GUIDE SLEEVE POSITION
Rack travel in mm: 4.40 Tolerance mm : + 0.30 Del. quantity	control lever position degree : - 1 Rated speed rpm : 1250
cm3/1000 strokes : 18.0 Tolerance	Rack travel in mm: 10.00
cm3/1000 strokes : +- 2.5 Check tolerance cm3/1000s. : +- 5.0	Tolerance mm : +- 2.00
Spreed Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 8.0	+ Rated speed rpm : 750 + Aneroid pressure + hPa : 1200
CHD7 70003	Del. quantity
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance + cm3/1000 strokes : +- 1.0 - Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : +- 4.0 + Spreed
Rated speed rpm : 1137 guide sleeve	+ Tolerance + cm3/1000 strokes : 8.0 + Check tolerance
travel mm : 8.19 Tolerance mm : + 0.25	cm3/1000s. : 11.0
Rated speed rpm : 300 guide sleeve	CONTROL LEVER
travel mm : 1.19 Tolerance mm : + 0.25	+ control lever + position degree : 58.0
Rated speed rpm : 816 guide sleeve	tolerance degree : +- 4.0
travel mm : 5.27 Tolerance mm : + 0.25	<pre>control lever position degree : 114.0 tolerance degree : +- 4.0</pre>
Rated speed rpm : 385 guide sleeve	RATED SPEED
travel mm : 1.98	rack travel mm : 10.05

Rated speed rpm Tolerance 1/min	: 1125 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1210 : +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : +- 0.50 : 1320
LOW IDLE	
control lever position degree tolerance degree	: 80.0 : +- 4.0
control lever position degree tolerance degree	: 15.0 : +- 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 6.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 4.40 : +- 0.30
Rated speed rpm	: 330
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 11.05 : + 0.05
Rated speed rpm Pressure hPa rack travel mm	: 500 : - : 7.80

Tolerance mm	: +- 0.10
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 680 : 2.90 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 200 : 0.25 : + 0.05

Aneroid pressure			
hPa	:		-
Rated speed rpm	:		700
Del. quantity cm3/1000 strokes Tolerance	:		132.0
cm3/1000 strokes Check tolerance	:	+-	1.0
cm3/1000s.	:	+-	4.0

FUEL DELIVERY CHARACTERISTICS

LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mm Tolerance mm Del. quantity	: : +-	4.40 0.30	
cm3/1000 strokes	:	18.0	
Tolerance cm3/1000 strokes Check tolerance	; +-	2.5	
cm3/1000s. Spreed	: +-	5.0	
Tolerance cm3/1000 strokes Check tolerance	:	5.0	
cm3/1000s.	:	8.0	

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 24.11.97 Test oil : ISO 4113

Combination No. : 0 402 846 083

Injection pump

Pump designation : PE6P120A320RS8052

EP type number : 0 412 826 038

Governor

Governer design. : RQV300...1100PA1248

Governer no. : 0 421 814 165

Cust. part No. : 11031370

: -P02 v.11.97

Customer-spec. information Customer : VCE

: TD 104 KAE Motor

Power KW : 216.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 : - 0.1 Tolerance bar

Tolerance l/h: \leftarrow 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.25 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 11.00

Tolerance mm : \leftarrow 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : \leftarrow 0.50

Check

tolerance °NW : +- 0.75

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 700

	1
Rack travel in mm : 12.30	Rated speed rpm : 500
Tolerance mm : + 0.05	+ guide sleeve
	† travel mm : 4.68
Del. quantity	+ Tolerance mm : +- 0.25
cm3/1000 strokes : 287.0	+
	+ Rated speed rpm : 1310
Tolerance	+ guide sleeve
cm3/1000 strokes : $+-$ 1.0	travel mm : 11.50
	+ Tolerance mm : +- 0.50
Check tolerance	†
$cm3/1000s.$: \leftarrow 4.0	CUIDE OF ECAL DOCUTION
Spreed	GUIDE SLEEVE POSITION
spreed	T
Tolerance	control lever
cm3/1000 strokes : 8.0	+ position degree : - 1
the rado strokes . G.o	Rated speed rpm : 1194
Check tolerance	Added Speed Ipin . 1174
cm3/1000s. : 11.0	Rack travel in mm : 10.00
	+ Tolerance mm : +- 1.30
	+
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
	+
Rack travel in mm : 4.50	+ Rated speed rpm : 700
Tolerance mm : → 0.10	+ Aneroid pressure
Del. quantity	+ hPa : 1500
cm3/1000 strokes : 38.0	+ Del. quantity
Tolerance	+ cm3/1000 strokes : 287.0
cm3/1000 strokes : + 2.5	+ Tolerance
Check tolerance cm3/1000s. : +- 5.0	+ cm3/1000 strokes : + 1.0
cm3/1000s. : +- 5.0 Spreed	+ Check tolerance + cm3/1000s. : +- 4.0
Tolerance	+ cm3/1000s. : +- 4.0 + Spreed
cm3/1000 strokes : 5.0	Tolerance
Check tolerance	- cm3/1000 strokes : 8.0
cm3/1000s. : 8.0	Check tolerance
. 0.0	+ cm3/1000s. : 11.0
	+ · · · · · · · · · · · · · · · · · · ·
(B) SETTING OF INJECTION PUMP	4
WITH GOVERNOR	
	+ CONTROL LEVER
	+
GUIDE SLEEVE TRAVEL	+ control lever
Oated aread now 4474	position degree : 63.0
Rated speed rpm : 1131	tolerance degree : +- 4.0
guide sleeve	†
travel mm : 8.39 Tolerance mm : +- 0.15	t control lever
Tolerance mm : +- 0.15	+ position degree : 118.0
Rated speed rpm : 330	tolerance degree : +- 4.0
guide sleeve	T RATED SPEED
travel mm : 1.83	+ rack travel mm : 11.30
Tolerance mm : +- 0.20	Rated speed rpm : 1130
1000 mm 0.20	+ Tolerance 1/min : +- 5
Rated speed rpm : 1044	+
guide sleeve	rack travel mm : 4.00
travel mm : 6.97	+ Rated speed rpm : 1175
Tolerance mm : + 0.25	+ Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1275

LOW IDLE

control lever

position degree : 66.0 tolerance degree : + 4.0

control lever

position degree : 11.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :> 8.00

Testing:

Rated speed rpm : 300 rack travel mm : 4.50 Tolerance mm : +- 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 12.30 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.30
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 9.40
Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660 rack travel mm : 2.50 Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : - Rated speed rpm : 700

Del. quantity

cm3/1000 strokes : 201.0

Tolerance

cm3/1000 strokes : +- 1.0

Check talerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 38.0
Tolerance
cm3/1000 strokes : +- 2.5
Check tolerance

Check tolerance cm3/1000s. : +- 5.0

Spreed Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 20,11,97 : ISO 4113

Combination No.

: 0 402 946 011

Injection pump

Pump designation : PES6P120A320RS8028

EP type number : 0 412 926 021

Governor

Governer design. : RQV275...1250PA1125K

Soverner no. : 0 421 815 981

Cust. part No. : CCEP 5140A 66-205

Customer-spec. information

Customer : RENAULT V.I.

Motor

: MIDR 06.02.26L51

Power KW

: 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

: 5.00 : +- 0.05 Prestroke mm Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 11.00 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW **:** +- 0.75

Start of delivery mark

°NW after s.o.d. : -C.25 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

21.00

and maximum rack

travel 10.00

Difference ° CS : 2.25

CRT ZERO POSITION

	† Tolerance mm : +- 0.15
Rack travel in mm : 12.60 Tolerance mm : +- 0.05	Rated speed rpm : 929 guide sleeve
	+ travel mm : 6.80
BASIC SETTING	Tolerance mm : + 0.20
	Rated speed rpm : 390
Rated speed rpm : 1250	+ guide sleeve + travel mm : 2.39
Del. quantity	Tolerance mm : + 0.20
cm3/1000 strokes : 170.0	+
Tolerance	Rated speed rpm : 440
cm3/1000 strokes : +- 1.0	<pre>+ guide steeve + travel mm : 3.01</pre>
	+ Tolerance mm : +- 0.20
Check tolerance	+
cm3/1000s. : + 4.0	Rated speed rpm : 550
Spreed	+ guide sleeve + travel mm : 3.92
opi ded	+ Tolerance mm : + 0.20
Tolerance	+
cm3/1000 strokes : 5.0	Rated speed rpm : 1650
Check tolerance	+ guide sleeve + travel mm : 13.50
cm3/1000s. : 9.0	+ Tolerance mm : +- 0.50
	+
	GUIDE SLEEVE POSITION
Rated speed rpm : 325	+ dolle seelve rosirion
	+
Rack travel in mm : -6.60 Tolerance mm : +- 0.10	<pre>+ control lever + position degree : - 1</pre>
Del. quantity	+ Rated speed rpm : 1430
cm3/1000 strokes : 41.0	+
Tolerance	+ Rack travel in mm : 10.90
cm3/1000 strokes : +- 2.0 Check tolerance	+ Tolerance mm : +- 2.00
cm3/1000s. : +- 6.0	
Spreed	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	+
cm3/1000 strokes : 8.0 Check tolerance	+ Rated speed rpm : 1250 + Aneroid pressure
cm3/1000s. : 12.0	+ hPa : 1600
	+ Del. quantity
(2) 0====1115===01151==	+ cm3/1000 strokes : 170.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Tolerance + cm3/1000 strokes : +- 1.0
WITH GOVERNOR	+ Check tolerance
	+ cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAVEL	+ Spreed
Rated speed rpm : 1355	+ Tolerance + cm3/1000 strokes : 5.0
guide sleeve	+ Check tolerance
travel mm : 10.10	+ cm3/1000s. : 9.0
Tolerance mm : + 0.10	+
Rated speed rpm : 275	İ
guide sleeve	CONTROL LEVER
travel mm : 1.00	+

		+	Pressure hPa	: 1600
control lever position degree	: 296.0	1	Tolerance mm	: + 0.10
tolerance degree	: +- 4.0	+	Rated speed rpm Pressure hPa	: -
RATED SPEED rack travel mm		+	rack travel mm Tolerance mm	: -4.30 : + 0.20
Rated speed rpm Tolerance 1/min		‡	MEASUREMENT	
rack travel mm Rated speed rpm		<u>†</u>	Rated speed rpm	: 1250
Tolerance 1/min		Ţ	Pressure hPa rack travel mm	: 200 : -3.70
rack travel mm Tolerance mm	: +- 0.55	‡	Tolerance mm	: +- 0.20
Rated speed rpm	: 1600	‡	Pressure hPa rack travel mm	: 360 : -2.60
		‡	Tolerance mm	: +- 0.05
LOW IDLE		Ī	Start interlock	
control lever		+	Rated speed rpm Rated speed rpm	
position degree tolerance degree	: 244.0 : + 4.0	+	Check	
Testing:		+	speed 1/min Check	
Rated speed rpm		+	speed 1/min	: < 260
rack travel mm Tolerance mm		†	FUEL DELIVERY CHA	ARACTERISTICS
Rated speed rpm	: 200	+	Aneroid pressure	
CRT mm max.	: < -5.20	+	hPa Rated speed rpm	: 1600
Rated speed rpm	: 360	‡	Del. quantity cm3/1000 strokes	
TORQUE CONTROL		‡	Tolerance cm3/1000 strokes	: +- 3.0
Rated speed rpm		‡	Check tolerance cm3/1000s.	: +- 6.0
Rated speed rpm rack travel mm		†		
Tolerance mm Rated speed rpm		Ť	Aneroid pressure hPa Rated speed rpm	: - : 500
rack travel mm Tolerance mm	: -1.70	Ī	Del. quantity cm3/1000 strokes	
. CCC. GIRC IIII		‡	Tolerance cm3/1000 strokes	
ANEROID/ALTITUDE COMPENSATOR TEST		‡	Check tolerance cm3/1000s.	: +- 4.0
		‡		
SETTING		+	STARTING FUEL DEL	

STARTING FUEL DELIVERY

Rated speed rpm : 1250

Rated speed rpm : 100

Del. quantity cm3/1000 strokes : 125.0

Tolerance

cm3/1000 strokes : \leftarrow 10.0

Check tolerance

cm3/1000s. : + 14.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm: -6.60 Tolerance mm : \leftarrow 0.10 Del. quantity cm3/1000 strokes : 41.0 Tolerance

cm3/1000 strokes : + 2.0 Check tolerance

cm3/1000s.: +- 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s.12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 26,11.97 : ISO 4113

Combination No. : 0 403 466 123

Injection pump

Pump designation : PES6MW100/120RS1137

: -2

EP type number

: 0 413 406 180

Governor

Governer design. : RSV500...1250MW2A319

: -16

Governer no.

: 0 420 085 130

Cust. part No. : 3918357

Customer-spec. information

Customer : CUMMINS Motor

: 6 CTA-8.3 L

Fower KW

: 171.0

TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 017

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 3.55 Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

BASIC SETTING

Del. quantity

cm3/1000 strokes : 132.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 6.0

: 500
: 9.00 : + 0.10
: + 0.10
: 53.5
: ← 2.0
: +- 4.5
: 3.5
: 5.5
ECTION PUMP
ION
. 7
: - 3 : 800
: 0.65 : +- 0.35
: 5.50
AT FULL LOAD STOP
: 1250
-
: 132.0
. 132.0
: + 1.0
: + 3.0
: 3.5
: 3.5 : 6.0

control lever position degree tolerance degree	: 97.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm	: 11.60 : 1325
Tolerance 1/min rack travel mm Rated speed rpm Tolerance 1/min	: + 5 : 4.00 : 1365 : + 5
rack travel mm Tolerance mm Rated speed rpm	: 1.00 : +- 0.70 : 1550
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1375 : +- 15
I ON TOLE	

LOW	IDLE
- V M	TOLL

control lever position degree : 65.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 500 rack travel mm : 9.50 Tolerance mm : +-0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 500 rack travel mm : 9.00 Tolerance mm : +- 0.10

rack travel mm : 2.00
Rated speed rpm : 570
Tolerance 1/min : +- 30

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa Rated speed rpm : 750 Del. quantity cm3/1000 strokes : 125.0 Tolerance cm3/1000 strokes : +-1.5 Check tolerance cm3/1000s. 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. 7.0 STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel ma : 20.00 Tolerance mm : +- 1.00 Del. quantity cm3/1000 strokes : 135.0 Tolerance cm3/1000 strokes : +- 10.0Check tolerance cm3/1000s. : **←** 13.0 LOW IDLE Rated speed rpm : 500 Rack travel in mm : 9.00 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 53.5 Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 4.5 Spreed Tolerance cm3/1000 strokes : 3.5

End of test specification sheet

5.5

Check tolerance

cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 28.11.97 Test oil : ISO 4113

Combination No. : 0 402 036 744

Injection pump

Pump designation : PES6P120A720/3LS3255

EP type number : 0 412 026 739

Governor

Governer design. : RQV300...1000PA876

: -12

Governer no. : 0 421 813 897

Cust. part No. : 3-7039

Customer—spec. information Customer : MAN

Motor : D2866LF05 Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 Tolerance °C : \leftarrow 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : +- 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 15.00 Tolerance mm : +- 0.50

Firing order : _6- 2- 4- 1- 5-

: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : \leftarrow 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 15.15 Tolerance mm : + 0.05

olerance mm : +- U.U5

	ı
	t control lever
Rated speed rpm : 300	position degree : 258.0
	tolerance degree : + 4.0
Rack travel in mm: 5.00	
Tolerance mm : + 0.10 Del. quantity	Setting point w/out bumper spring
cm3/1000 strokes : 20.0	Rated speed rpm : 200
Tolerance	+
cm3/1000 strokes : +- 3.0 Check tolerance	+ CRT mm min. :> 6.50
cm3/1000s. : +- 6.0	† † Testing:
Spreed	+
Tolerance	Rated speed rpm : 300
cm3/1000 strokes : 8.0	rack travel mm : 5.00
Check tolerance cm3/1000s. : 12.0	† Tolerance mm : +- 0.10
. 12.0	Rated speed rpm : 340
••	+
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tabour con acu
WITH GUVERNOR	+ TORQUE CONTROL - Rated speed rpm : 700
	Rated speed rpm : 700 rack travel mm : 15.15
	Tolerance mm : + 0.05
GUIDE SLEEVE POSITION	t Batad wand was 4000
	+ Rated speed rpm : 1000 + rack travel mm : 15.15
control lever	+ Tolerance mm : +- 0.05
position degree : - 1	+
Rated speed rpm : 1100	+ Rated speed rpm : 700
Rack travel in mm : 16.50	+ rack travel mm : 8.00 + Tolerance mm : +- 0.10
Tolerance mm : +- 1.30	+ Total alike min . 7 = 0.10
	ANEROID/ALTITUDE
CONTROL LEVER	+ COMPENSATOR TEST
	+
control lever	+ SETTING
position degree : 302.0 tolerance degree : +- 4.0	Poted around prom . 500
toterance degree : 4.0	+ Rated speed rpm : 500 + Pressure hPa : 1200
RATED SPEED	rack travel mm : 15.15
rack travel mm : 14.10	Tolerance mm : + 0.05
Rated speed rpm : 1045 Tolerance 1/min : +- 5	Pated speed speed
roterance mini : +- 3	+ Rated speed rpm : 500 + Pressure hPa : -
rack travel mm : 4.00	rack travel mm : 12.10
Rated speed rpm : 1165	Tolerance mm : + 0.10
Tolerance 1/min : +- 15	+ MEASI (DEMEN)T
rack travel mm : 0.50	+ MEASUREMENT
Tolerance mm : +- 0.50	Rated speed rpm : 500
Rated speed rpm : 1300	+
	Pressure hPa : 470
	+ rack travel mm : 14.20 + Tolerance mm : +- 0.20
	+
LOW IDLE	Pressure hPa : 110
	+ rack travel mm : 12.35

Tolerance mm	: +- 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 220
Check speed 1/min Check	: > 80
speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	4200
hPa Rated speed rpm Del. quantity	: 1200 : 1000
cm3/1000 strokes Tolerance	: 245.0
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s.	: +- 5.0
Aneroid pressure	
Rated speed rpm Del. quantity	700
cm3/1000 strokes Tolerance	: 94.0
cm3/1000 strokes Check tolerance	
cm3/1000s. Spreed	: +- 8.0
Tolerance cm3/1000 strokes	: 10.0
Aneroid pressure hPa	
Rated speed rpm Del. quantity	: 500
cm3/1000 strckes Tolerance	: 139.0
cm3/1000 strokes Check tolerance	: +- 1.0
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm Del. quantity	: 100
cm3/1000 strokes	: 220.0

Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: ← 10.0 : ← 14.0
LOW IDLE	
Rated speed rpm	: 300
Rack travel in mm Tolerance mm	: 5.00 : + 0.10
Del. quantity cm3/1000 strokes Tolerance	: 20.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/10COS. Spreed	: ← 6.0
Tolerance cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 21.11.97

Test oil

: ISO 4113

Combination No. : 0 402 795 202

Injection pump

Pump designation : PES5H12O/72O/3LS1002

: -1

EP type number : 0 412 725 202

Governor

Governer design. : RE33

Governer no. : 0 421 890 362

Cust. part No. : 51.11103-7408

Customer-spec. information

Customer : MAN

Motor

: D 2865 LUH 07

Power KW

: 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAE)

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 073

Inlet press. bar :

3.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

Tolerance bar : + 1.5

208.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter:

3.0

x lenath mm

600 :

REMARKS

Pump-specific values in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section S.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 10.00 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 0.50

Firing order : 1-3-5-4-2

Phasing Phasing : 0-72-144Tolerance : $\leftarrow 0.50$

: 0-72-144-216-288

Check

tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : \leftarrow 0.10

tolerance °NW

: + 0.75

Barrel no. : 5

(B) POSITIONER TESTING

Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

CRT mm : 1,00 TESTING & SETTING RACK TRAVEL SENSOR POSITION Starting position (qmuq M) Engine speed min-1: Uact V 4,500 : +- 0,115 Tolerance Volt Setting point CRT mm 19,00 (P, R and H pump) Tolerance mm 08,0 Uact V 3.100 CRT mm 13.00 ENGINE-SPEED SENSOR Tolerance mm (All P and R pumps not : +/- 0.05Check H and M pumps) tolerance mm : +/- 0.10 Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: 60 Amplitude V 1.4 Uact V 1.700 Tolerance V : +/- 0.6 6.15 CRT mm Check Tolerance mm : +/- 0.25 tolerance V : +/- 1.20 Check : +/- 0.30tolerance mm Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (mpump) Uact V 3.100 CRT mm 12.50 (C) INJECTION PUMP WITH POSITIONER Tolerance mm : +/- 0.05 TEST POINT V1 Check : +/- 0.10 tolerance mm Rated speed rpm 750 Check value Uact V 3.350 (M pump) Frestroke solenoid Stroke mm 10.00 Uact V 1.700 Del. quantity cm3/1000 strokes : CRT mm 5.50 332.0 Tolerance mm : +/- 0.25 Tolerance cm3/1000 strckes : → Check 1.0 : +/- 0.30 Check tolerance tolerance mm cm3/1000s. 4.0 Stop position Spreed (P, R and H pump) Tolerance cm3/1000 strokes : 5.0 Uact V Check tolerance : Value with deenergised adjusting magnet cm3/1000s. 9.0 and control rod in FUEL DELIVERY CHARACTERISTICS stop position. CRT mm 0.75 Rated speed rpm Tolerance mm : +/- 0.25 1000 Check Uact V 3.290 tolerance mm : +/- 0.35Prestroke solenoid Stroke mm 8.00 Stop position Del. quantity (M pump) cm3/1000 strokes : 312.0 Uact V Tolerance 0,720

cm3/1000 strokes : +-

4.0

Tolerance Volt

0,065

Check tolerance cm3/1000s.	: +- 8.0
Rated speed rpm	: 500 : 2.100
Prestroke solenoi Stroke mm Del. quantity	d : 6.20
cm3/1000 strokes Tolerance	: 173.0
cm3/1000 strokes Check tolerance	: ← 4.0
cm3/1000s.	: +- 8.0
TEST POINT L1	
Rated speed rpm Uact V Tolerance Volt	: 300 : 1.500 : + 0.060
Check tolerance Volt Prostroko polono:	: +- 0.080
Prestroke solenoid Stroke mm Dolgantity	: 7.20
Del. quantity cm3/1000 strokes Tolerance	: 32.0
cm3/1000 strokes Spreed	: +- 3.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm Uact V Prestroke solenoi	: 100 : 2.450
Stroke mm	: 7.00
Del. quantity cm3/1000 strokes Tolerance	: 185.0
cm3/1000 strokes Check tolerance	: +- 10.0
cm3/1000s.	: + 14.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 21.11.97 : ISO 4113

Combination No. : 0 402 795 203

Injection pump

Pump designation : PES5H120/720/3LS1004

EP type number : 0 412 725 203

Governor

Governer design. : RE33

Governer no.

: 0 421 890 364

Cust. part No. : 51.11103-7476

Customer-spec. information Customer : MAN

Motor

: D 2865 LF 09

Power KW

: 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C

Tolerance °C

: +- 2.0

Overflow valve : 2 417 413 073

Inlet press. bar :

3.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

L03

x inside diameter: 3.0 x Length mm :

600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

: 10.00 Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 0.50

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

: +- 0.10 Tolerance

Check

tolerance °NW

: +- 0.75

Barrel no.

: 5

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

CRT mm 1,00 TESTING & SETTING RACK TRAVEL SENSOR POSITION Starting position (amua M) Engine speed min-1: Uact V 4,500 Tolerance Volt : +- 0,115 Setting point CRT mm 19,00 (P, R and H pump) Tolerance mm : +- 0,80 3.100 Uact V CRT mm 13.00 ENGINE-SPEED SENSOR Tolerance mm : +/- 0.05 (All P and R pumps not Check H and M pumps) : +/- 0.10 tolerance mm Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: Amplitude V 1.4 Tolerance V Uact V 1.700 : +/- 0.66.15 CRT mm Check Tolerance mm : +/- 0.25 tolerance V : ± 1.20 Check tolerance mm : +/- 0.30Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (M pump) Uact V 3.100 CRT mm 12.50 (C) INJECTION PUMP WITH POSITIONER : +/- 0.05Tolerance mm TEST POINT V1 Check tolerance mm : +/- 0.10Rated speed rpm 750 Check value Uact V 3.350 (qmuq M) Prestroke solenoid Stroke mm 10.00 Del. quantity cm3/1000 strokes : Uact V 1.700 CRT mm 5.50 326.0 Tolerance mm : +/- 0.25 Tolerance Check cm3/1000 strokes : +-1.0 : +/- 0.30 Check tolerance tolerance mm cm3/1000s. 4.0 Stop position Spreed (P, R and H pump) Tolerance cm3/1000 strokes : 5.0 Uact V : Value with Check tolerance deenergised adjusting magnet cm3/1000s. and control rod in FUEL DELIVERY CHARACTERISTICS stop position. CRT mm 0.75 : +/- 0.25 Tolerance mm 1000 Rated speed rpm Check Uact V 3.290 tolerance mm : +/- 0.35Prestroke solenoid Stroke mm 8.00 Del. quantity Stop position cm3/1000 strokes : (M pump) 306.0 Uact V 0,720 Tolerance Tolerance Volt : +- 0,065 cm3/1000 strokes : +-

4.0

Check tolerance cm3/1000s.	: +- 8.0	
Rated speed rpm Uact V	: 500 : 2.100	
Prestroke solenoid Stroke mm	: 6.20	
Del. quantity cm3/1000 strokes Tolerance	: 167.0	
cm3/1000 strokes Check tolerance	: +- 4.0	
cm3/1000s.	: +- 8.0	
TEST POINT L1		
Rated speed rpm Uact V Tolerance Volt Check tolerance	: 300 : 1.500 : ← 0.060	
Volt Prestroke solenoid	: +- 0.080	
Stroke mm Del. quantity	: 7.20	
cm3/1000 strokes Tolerance	: 25.0	
cm3/1000 strokes Spreed	: +- 3.0	
Tolerance cm3/1000 strokes	: 8.0	
Check tolerance cm3/1000s.	: 12.0	
STARTING FUEL DEL	VERY	
Rated speed rpm Jact V	: 100 : 2.450	
Prestroke solenoid Stroke mm	· 2.490 : 7.00	
Del. quantity cm3/1000 strokes		
Tolerance cm3/1000 strokes	: + 10.0	
Check tolerance	: 14.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 795 204

Injection pump

Pump designation : PES5H120/720/3LS1004

: -1

EP type number : 0 412 725 204

Governor

Governer design. : RE33

: 0 421 890 364 Governer no.

Cust. part No. : 51.11103-7538

Customer-spec. information

Customer : MAN

Motor : D 2865 LF 09

Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C 40 Tolerance °C 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 10.00 Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 0.50

: 1-3-5-4-2 Firing order

: 0-72-144-216-288 Phasing

Tolerance : **←** 0.50

Check

: +- 0.75 tolerance °NW

Start of delivery blocking

: +- 0.10 Tolerance

Check

tolerance °NW : ÷**-** 0.75

Barrel no. : 5

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

CRT mm 1,00 TESTING & SETTING RACK TRAVEL SENSOR **POSITION** Starting position (M pump) Engine speed min-1: 0 Uact V 4,500 Tolerance Volt : + 0,115Setting point CRT mm 19,00 (P, R and H pump) Tolerance mm 0,80 Uact V 3.100 : 13.00 CRT mm ENGINE-SPEED SENSOR Tolerance mm : +/- 0.05 (All P and R pumps not Check H and M pumps) tolerance mm : +/- 0.10Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: 60 Amplitude V 1.4 Uact V 1.700 Tolerance V : +/- 0.6 CRT mm 6.15 Check. Tolerance mm : +/- 0.25tolerance V : +/- 1.20 Check : +/- 0.30tolerance mm Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (qmuq M) Uact V 3.100 CRT mm 12.50 (C) INJECTION PUMP WITH POSITIONER Tolerance mm : +/-- 0.05 Check TEST POINT V1 : +/- 0.10 tolerance mm Rated speed rpm 750 Check value Uact V 3.350 (qmuq M) Prestroke solenoid Stroke mm 10.00 Uact V 1.700 Del. quantity cm3/1000 strokes : 5.50 CRT mm 326.0 Tolerance mm : +/- 0.25 Tolerance cm3/1000 strokes : +-Check 1.0 tolerance mm : +/- 0.30Check tolerance cm3/1000s.4.0 Stop position Spreed (P, R and H pump) Tolerance cm3/1000 strokes : 5.0 Uact V : Value with Check tolerance cm3/1000s. deenergised adjusting magnet 9.0 and control rod in FUEL DELIVERY CHARACTERISTICS stop position. 0.75 CRT mm Tolerance mm : +/- 0.25 Rated speed rpm 1000 Check Uact V 3.290 : +/- 0.35tolerance mm Prestroke solenoid Stroke mm 8.00 Stop position Del. quantity cm3/1000 strokes : (M pump) 306.0 Uact V 0,720 Tolerance cm3/1000 strokes : +-

Tolerance Volt

0,065

4.0

Check tolerance cm3/1000s.	: +	- 8.0	
Rated speed rpm Uact V	:	500 2.100	
Prestroke solenoi	ď	2.100	
Stroke mm	:	6.20	
Del. quantity			
cm3/1000 strokes	:	167.0	
Tolerance		, 0	
cm3/1000 strokes Check tolerance	: +	- 4.0	
cm3/1000s.	• +	- 8.0	
10000.	• '	0.0	
EST POINT L1			
ated speed rpm	:	300	
lact V	:	1.500	
olerance Volt	: +	- 0.060	
heck tolerance		0.000	
olt maatmaka aalamai		- 0.080	
restroke solenoi troke mm	u.	7.20	
el. quantity	•	1.20	
m3/1000 strokes	•	25.0	
olerance			
m3/1000 strokes	: +	- 3.0	
preed			
olerance m3/1000 strokes		8.0	
heck tolerance	•	0.0	
m3/1000s.	:	12.0	
	•		
TARTING FUEL DEL	IVER	Y	
lated speed rom		100	
ated speed rpm act V	:	2.450	
restroke solenoi	ď	2.450	
troke mm	:	7.00	
el. quantity			
n3/1000 strokes	:	174.0	
olerance		45.5	
m3/1000 strokes	: +	- 10.0	
heck tolerance m3/1000s.	٠ +	- 14.0	
10000 ·	•	14.0	

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 795 205

Injection pump

Pump designation : PES5H120/720/3LS1002

: -2

EP type number : 0 412 725 205

Governor

Governer design. : RE33

Governer no. : 0 421 890 362

Cust. part No. : 51.11103-7540

Customer-spec. information

Customer : MAN

Motor : D 2865 LUH 07

Power KW : 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 10.00 Tolerance mm : +- 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 0.50

Firing order : 1- 3- 5- 4- 2

Phasing : 0-72-144-216-288

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 5

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

CRT mm : 1,00 TESTING & SETTING RACK TRAVEL SENSOR **POSITION** Starting position (amua M) Engine speed min-1: Uact V 4,500 Tolerance Volt 0,115 Setting point CRT mm 19,00 (P, R and H pump) Tolerance mm : + - 0.80Uact V 3.100 CRT mm 13.00 ENGINE-SPEED SENSOR Tolerance mm : +/- 0.05 (All P and R pumps not Check H and M pumps) tolerance mm : +/- 0.10Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: 60 Amplitude V 1.4 Uact V 1.700 Tolerance V : +/- 0.6 CRT min 6.15 Check : +/- 0.25 Tolerance mm tolerance V : ± 1.20 Check : +/- 0.30tolerance mm Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (M pump) Uact V 3.100 12.50 CRT mm (C) INJECTION PUMP WITH POSITIONER Tolerance mm : +/- 0.05 Check TEST POINT V1 : +/- 0.10tolerance mm 750 Rated speed rpm Check value Uact V 3.350 Frestroke solenoid (amua M) Stroke mm 10.00 Uact V 1.700 Del. quantity cm3/1000 strokes : 5.50 CRT mm 332.0 Tolerance mm : +/- 0.25 Tolerance Check cm3/1000 strokes : +-1.0 : +/- 0.30 Check tolerance tolerance mm cm3/1000s. : +-4.0 Stop position Spreed (P, R and H pump) Tolerance cm3/1000 strokes : 5.0 Uact V : Value with Check tolerance deenergised adjusting magnet cm3/1000s. and control rod in FUEL DELIVERY CHARACTERISTICS stop position. CRT mm 0.75 Tolerance mm : +/- 0.25 Rated speed rpm 1000 Check Uact V 3.290 : +/- 0.35 tolerance mm Prestroke solenoid Stroke mm 8.00 Stop position Del. quantity cm3/1000 strokes : (M pump) 312.0 Uact V 0,720 Tolerance cm3/1000 strokes : +- 4.0

Tolerance Volt : + 0,065

Check tolerance cm3/1000s.	: +- 8.0
Rated speed rpm Uact V Prestroke solenoi	: 500 : 2.100
Stroke mm Del. quantity	: 6.20
cm3/1000 strokes Tolerance	: 173.0
cm3/1000 strokes Check tolerance	: + 4.0
cm3/1000s.	: +- 8.0
TEST POINT L1	
Rated speed rpm Uact V Tolerance Volt	: 300 : 1.500 : + 0.060
Check tolerance Volt	: +- 0.080
Prestroke solenoi Stroke mm	: 7.20
Del. quantity cm3/1000 strokes Tolerance	: 32.0
cm3/1000 strokes Spreed	: ← 3.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm Uact V	: 100 : 2.450
Prestroke solenoid Stroke mm	: 7.00
Del. quantity cm3/1000 strokes	: 185.0
Tolerance cm3/1000 strokes	: +- 10.0
Check tolerance cm3/1000s.	: +- 14.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 28,11,97

Test oil

: ISO 4113

Combination No. : 0 402 796 042

Injection pump

Pump designation : PES6H120/320RS26

EP type number

: 0 412 726 014

Governor

Governer design. : RE36

Governer no.

: 0 421 890 374

Cust. part No. : 8192940 PO2 v.10/97

Customer-spec. information

Customer

: VOLVO-TRUCK

Motor

: D7C EURO II

Power KW

: 228.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve : 2 417 413 082

Inlet press. bar :

3.0

Tolerance bar

0.1 : +--

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test lines

: 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 8.00 : **←** 0.05 Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2

Phasing : 0-60-120-180-240

: -300

Titlerance : +- 0.30

Cheak

: +- 0.75 tolerance °NW

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING RACK TRAVEL SENSOR

POSITION

Engine speed min-1: 0

Setting point (P, R and H pump)

	7.400	†
Uact V	3.100	THOUSE COMPANY
	: 13.00	+ ENGINE-SPEED SENSOR
Tolerance mm Check	: +/- 0.05	(All P and R pumps not
	: +/- 0.10	H and M pumps)
toter ance min	. 17- 0.10	Test with control rod
Check value		in stop position
(P, R and H pump)		11 3 top position
a y a cara a pamps		Engine speed min-1: 60
Uact V	: 1.700	+ Amplitude V : 1.4 + Tolerance V : +/- 0.6
CRT mm	: 6.15	+ Check
Tolerance mm	: +/- 0.25	+ tolerance V : +/- 1.20
Check		†
tolerance mm	: +/- 0.30	+ Engine speed min-1: 600
		+ Difference
Codding point		Amplitude to
Setting point		Amplitude V : max.1.4
(M pump)		†
Uact V	: 3.100	Ť
CRT mm	: 12.50	(C) INJECTION PUMP WITH POSITIONER
	: +/- 0.05	+ (c) 1102C(1014 O/1 W1(1) O51 1014EK
Check	. , 0.03	TEST POINT V1
tolerance mm	: +/- 0.10	+
		Rated speed rpm : 660
Check value		+ Uact V : 3.000
(M pump)		+ Prestroke solenoid
		+ Stroke mm : 5.30
Uact V	: 1.700	+ Del. quantity
CRT mm	: 5.50	+ cm3/1000 strokes : 308.0
	: +/- 0.25	† Tolerance
Check	. 1/ 0.70	+ cm3/1000 strokes : +- 1.0
tolerance mm	: +/- 0.30	+ Check tolerance + cm3/1909s. : +- 5.0
Stop position		+ Spreed : +- 5.0
(P, R and H pump)		+ Tolerance
(1) It and it pumps		+ cm3/1000 strokes : 8.0
Uact V	: Value with	+ Check tolerance
	gised adjusting magnet	+ cm3/1000s. : 11.0
	and control rod in	+ FUEL DELIVERY CHARACTERISTICS
	stop position.	+
CRT mm	: 0.75	
	: +/- 0.25	+ Rated speed rpm : 950
Check		+
tolerance mm	: +/- 0.35	+ TEST POINT L1
Stop position		Rated speed rpm : 300
Stop position (M pump)		Rated speed rpm : 300 Uact V : 1.670
Uact V	: 0,720	Tolerance Volt : +- 0.060
Tolerance Volt	: +- 0,065	+ Check tolerance
CRT mm	: 1,00	+ Volt : +- 0.060
	.,	+ Prestroke solenoid
Starting position		+ Stroke mm : 5.30
(M pump)		+ Del. quantity
Uact V	: 4,500	+ cm3/1000 strokes : 16.0
	: ← 0,115	+ Tolerance
CRT mm	: 19,00	+ cm3/1000 strokes : +- 2.0
Tolerance mm	: ← 0,80	+ Spreed

Tolerance : 5.0 Check tolerance cm3/1000s. : 8.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 21.11.97 : ISO 4113

Combination No.

: 0 402 796 202

Injection pump

Pump designation : PES6H120/720/3LS1005

EP type number

: 0 412 726 202

Governor

Governer design. : RE33

Governer no.

: 0 421 890 364

Cust. part No. : 51.11103-7477

Customer-spec. information

Customer

: MAN

Motor

: D 2866 LF 16

Power KW

: 294.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C

40 Tolerance °C

Overflow valve

: 2 417 413 073

Inlet press. bar :

3.0

Tolerance bar

: +-0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: + 1.5

Test lines

: 1 680 750 089

Outside diameter :

8.0

x inside diameter : x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

: 10.00 Prestroke mm : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 0.50

Firing order : 6-2-4-1-5-

: 3

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

: +- 0.75tolerance °NW

Start of delivery blocking

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no.

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

		+ c	CRT mm	:	1,00
TESTING & SETTING POSITION	RACK TRAVEL SENSOR	1 5	Starting position		
, 001, 10,			(M pump)		
Engine speed min-	1: 0	+ 4	Jact V	:	4,500
Setting point		1 7	Tolerance Volt	: +-	0,115
(P, R and H pump)		T T	olerance mm	· : +-	0,80
•		+			-,
Uact V CRT mm	: 3.100 · 13.00	1 =	ENGINE-SPEED SENSO	מנ	
Tolerance mm	: +/- 0.05	1	All P and R pumps		
Check			l and M pumps)		
tolerance mm	: +/- 0.10	İ 7.	est with control	rod	
Check value		1	n stop position	i Qu	
(P, R and H pump)		+			
			ingine speed min-		
Uact V	: 1.700	T T	mplitude V Tolerance V	: +/-	0.6
Uact V CRT mm Tolerance mm	: 6.15	+ C	Check		
Tolerance mm Check	: +/- 0.25		colerance V	: +/-	1.20
tolerance mm	: +/- 0.30		ingine speed min-	1: 6	00
		+ A	Amplitude to		
Setting point (M pump)		+ A	Implitude V	: max	.1.4
liact V	• 3 100	İ _			
Uact V CRT mm	: 12.50	Į ((C) INJECTION PUMP	> WITH	POSITIONER
Tolerance mm	: +/- 0.05	+			
Check tolerance mm	· +/- 0 10	1 T	TEST POINT V1		
to ter arice limit	. 17 0.10	T R	Rated speed rpm	:	750
Check value		+ U	Jact V	:	3.350
(M pump)			Prestroke solenoid Stroke mm		10.00
Uact V	: 1.700		el. quantity	•	10.00
CRT mm	: 5.50	+ 01	m3/1000 strokes	:	328.0
Tolerance mm Check	: +/- 0.25		olerance m3/1000 strokes	: +-	1.0
tolerance mm	: +/- 0.30		heck tolerance	• •	1.0
		+ 01	m3/1000s.	: +-	4.0
Stop position (P, R and H pump)			preed Tolerance		
(1) It did it paints		4	m3/1000 strokes	:	5.0
Uact V	: Value with	1	heck tolerance		
deene	rgised adjusting magnet and control rod in		:m3/1000S. :UEL DELIVERY CHAF	: DACTED	9.0
	stop position.	+ '	OCC DECENCE ONA	ACTEN.	13/10
CRT mm	: 0.75	+ _			200
Tolerance mm Check	: +/- 0.25		lated speed rpm lact V		000 3.290
tolerance mm	: +/- 0.35	1	restroke solenoid		J. L. / U
05		+ s	troke mm	:	8.00
Stop position (M pump)			el. quantity m3/1000 strokes		308.0
Uact V	: 0,720	+ Te	olerance		JUU: U
Tolerance Volt	: ← 0,065	+ c1	m3/1000 strokes	: +-	4.0

Check tolerance cm3/1000s.	: ← 8.0	
Rated speed rpm Uact V Prestroke solenoi	: 500 : 2.100	
Stroke mm Del. quantity	: 6.20	
cm3/1000 strokes Tolerance	: 168.0	
cm3/1000 strokes Check tolerance	: + 4.0	
cm3/1000s.	: + 8.0	
TEST POINT L1		
Rated speed rpm Uact V Tolerance Volt Check tolerance	: 300 : 1.500 : ÷- 0.060	
Volt Prestroke solenoi	: +- 0.080	
Stroke mm Del. quantity	: 7.20	
cm3/1000 strokes Tolerance	: 25.0	
cm3/1000 strokes Spreed	: +- 3.0	
Tolerance cm3/1000 strokes Check tolerance	: 8.0	
cm3/1000s.	: 12.0	
STARTING FUEL DEL	IVERY	
Uact V	: 100 : 2.450	
Prestroke solenoic Stroke mm	: 7.90	
Del. quantity cm3/1000 strokes	: 177.0	
Tolerance cm3/1000 strokes	: + 10.0	
Check tolerance cm3/1000s.	: - 14.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 : ISO 4113 Test oil

Combination No. : 0 402 796 203

Injection pump

Pump designation : PES6H120/720/3LS1006

EP type number : 0 412 726 203

Governor

Governer design. : RE33

Governer no. : 0 421 890 365

Cust. part No. : 51.11103-7479

Customer-spec. information

Customer : MAN

: D 2866 LUH 21 Motor

Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4(EHAB)

Test oil inlet

temp. °C Tolerance °C 2.0

Overflow valve : 2 417 413 073

Inlet press. bar : 3.0 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar 208.5 : + 1.5 Tolerance bar

Test Lines : 1 680 750 089

Outside diameter : 8.0 x inside diameter: 3.0 x length mm 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 10.00 : +- 0.05 Tolerance mm

Check

tolerance mm : -- 0.10

Rack travel in mm : 10.50 : +- 0.50 Tolerance mm

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : +- 0.10

Check

tolerance "NW : +- 0.75

Barrel no.

(B) POSITIONER TESTING Warm-up time: 3 minutes at

n=600 min-1, Uact = 2.5 V

CRT mm 1,00 TESTING & SETTING RACK TRAVEL SENSOR POSITION Starting position (qmuq M) Engine speed min-1: Uact V 4,500 Tolerance Volt : + 0,115Setting point CRT mm 19,00 (P, R and H pump) Tolerance mm : +- 0,80 Uact V 3.100 CRT mm 13.00 ENGINE-SPEED SENSOR Tolerance mm : +/- 0.05 (All P and R pumps not Check H and M pumps) : +/- 0.10 tolerance mm Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: 60 Amplitude V 1.4 Jact V 1.700 Tolerance V : +/- 0.6 CRT mm 6.15 Check Tolerance mm : +/- 0.25 tolerance V : +/- 1.20 Check tolerance mm : +/- 0.30 Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (qmuq M) Uact V 3.100 CRT mm 12.50 (C) INJECTION PUMP WITH POSITIONER Tolerance mm : +/- 0.05 TEST POINT V1 Check : +/- 0.10 tolerance mm Rated speed rpm 750 theck value Uact V 3.350 Prestroke solenoid (mpump) Stroke mm 10.00 Uact V 1.700 Del. quantity CRT mm 5.50 cm3/1000 strokes : 332.0 Tolerance mm : +/- 0.25 Tolerance cm3/1000 strokes : +-Check 1.0 : +/- 0.30 Check tolerance tolerance mm cm3/1000s. 4.0 Stop position Spreed Tolerance (P, R and H pump) cm3/1000 strokes : 5.0 Check tolerance Uact V : Value with deenergised adjusting magnet cm3/10005. and control rod in FUEL DELIVERY CHARACTERISTICS stop position. 0.75 CRT mm : +/- 0.25 Tolerance mm Rated speed rpm 1000 Check Uact V 3.290 : +/- 0.35Prestroke solenoid tolerance mm Stroke mm 8.00 Stop position Del. quantity cm3/1000 strokes : (amuq M) 312.0 Uact V 0,720 Tolerance cm3/1000 strokes : +-Tolerance Volt : + 0,065

Check tolerance cm3/1000S.	:	+	8.0	
Rated speed rpm Jact V Prestroke solenoid	:		500 2.100	
Stroke mm	:		6.20	
Pel. quantity m3/1000 strokes	:		173.0	
olerance m3/1000 strokes	:	+-	4.0	
heck tolerance m3/1000s.	:	+	8.0	
EST POINT L1				
ated speed rpm act V oierance Volt	:		300 1.500 0.060	
Check tolerance		+-	0.080	
restroke solenoid troke mm	:		7.20	
el. quantity m3/1000 strokes	:		33.0	
olerance m3/1000 strokes preed	:	+-	3.0	
olerance m3/1000 strokes	:		8.0	
Check tolerance Cm3/1000S.	:		12.0	
TARTING FUEL DEL		 ERY		·
ated speed rpm act V restroke solenojo	:		100 2.450	
troke mm	:		7.00	
el. quantity m3/1000 strokes	:		185.0	
olerance m3/1000 strokes	:	+-	10.0	
heck tolerance m3/1000s.	:	+-	14.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 21.11.97 : ISO 4113

Combination No. : 0 402 796 204

Injection pump

Pump designation : PES6H12O/72O/3LS1005

: -1

EP type number

: 0 412 726 204

Governor

Governer design. : RE33

Governer no. : 0 421 890 364

Cust. part No. : 51.11103-7539

Customer-spec. information

Customer : MAN

Motor

: D 2866 LF 16

Power KW

: 294.0

TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

40

Tolerance °C

2.0

Overflow valve : 2 417 413 082

Inlet press. bar :

3.0

Tolerance bar

: +- 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

208.5

Tolerance bar

: **←** 1.5

Test lines

: 1 680 750 089

Outside diameter : 8.0

x inside diameter:

3.0

x length mm

600

REMARKS

Pump-specific values in Section (B)

must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 10.00

: **←** 0.05 Tolerance mm

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50

Tolerance mm : \leftarrow 0.50

Firing order : 6-2-4-1-5-

Phasing : 0-60-120-180-240

: -300

Tolerance : +~ 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no.

: 6

(B) POSITIONER TESTING

Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

CRT mm : 1,00 TESTING & SETTING RACK TRAVEL SENSOR POSITION Starting position (m pump) 4,500 Engine speed min-1: 0 Uact V Tolerance Volt : + - 0,11519,00 Setting point CRT mm (P, R and H pump) : +- 0,80 Tolerance mm 3.100 Uact V 13.00 ENGINE-SPEED SENSOR CRT mm : +/- 0.05 Tolerance mm (All P and R pumps not H and M pumps) Check : +/- 0.10 tolerance mm Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: Amplitude V : 1.4 Uact V 1.700 Tolerance V : +/- 0.6 CRT mm 6.15 Check Tolerance mm : +/- 0.25 tolerance V : +/- 1.20 Check : +/- 0.30 Engine speed min-1: 600 tolerance mm Difference Amplitude to Setting point Amplitude V : max.1.4 (amua M) 12.50 3.100 Uast V CRT mm (C) INJECTION PUMP WITH POSITIONER : +/- 0.05 Tolerance mm TEST POINT V1 Check : +/- 0.10 tolerance mm Rated speed rpm : 750 Check value Uact V 3.350 (qmuq M) Prestroke solenoid Stroke mm 10.00 Del. quantity cm3/1000 strokes : 1.700 Uact V CRT mm 5.50 328.0 : +/- 0.25 Tolerance Tolerance mm cm3/1000 strokes : +-1.0 Check tolerance mm : $\pm - 0.30$ Check tolerance cm3/1000s. 4.0 : +-Spreed Stop position Tolerance (P, R and H pump) cm3/1000 strokes : 5.0 Check tolerance : Value with Uact V deenergised adjusting magnet cm3/1000s. and control rod in FUEL DELIVERY CHARACTERISTICS stop position. CRT mm 0.75 : +/- 0.25 1000 Rated speed rpm : Tolerance mm Uact V 3.290 Check : +/- 0.35 Prestroke solenoid tolerance mm Stroke mm 8.00 Stop position Del. quantity cm3/1000 strokes : 308.0 (amua M) Uact V 0,720 Tolerance Tolerance Volt : + 0,065 cm3/1000 strokes : +- 4.0

Check tolerance cm3/1000s. : +- 8.0
Rated speed rpm : 500 Uact V : 2.100
Prestroke solenoid
Stroke mm : 6.20 Del. quantity
cm3/1000 strokes : 168.0 Tolerance
cm3/1000 strokes : + 4.0
Check tolerance
cm3/1000s. : +- 8.0
TEST POINT L1
Rated speed rpm : 300
Uact V : 1.500
Tolerance Voit : + 0.060 Check tolerance
Volt : + 0.080
Prestroke solenoid
Stroke mm : 7.20
Del. quantity cm3/1000 strokes : 25.0
Tolerance
cm3/1000 strokes : + 3.0 Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000s. : 12.0
STARTING FUEL DELIVERY
Rated speed rpm : 100
Uact V : 2.450
Prestroke solenoid
Stroke mm : 7.00 Del. quantity
cm3/1000 strokes : 177.0
Tolerance
cm3/1000 strokes : +- 10.0 Check tolerance
cm3/1000s. : + 14.0
End of test specification sheet

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.11.97 Test oil : ISO 4113

Combination No. : 0 402 796 205

Injection pump

Pump designation: PES6H120/720/3LS1006

: -1

EP type number : 0 412 726 205

Governor

Governer design. : RE33

Governer no. : 0 421 890 365

Cust. part No. : 51.11103-7541

Customer—spec. information

Customer : MAN

: D 2866 LUH 21 Motor

Power KW : 257.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0 Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

208.5 Tolerance bar : **←** 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 10.00 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 0.50

Firing order : 6-2-4-1-5-

: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery blocking

Tolerance : + - 0.10

Check

tolerance °NW : +- 0.50

Barrel no.

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

1,00 CRT mm TESTING & SETTING RACK TRAVEL SENSOR Starting position POSITION (amuq M) Engine speed min-1: Uact V 4,500 Tolerance Volt : + 0,115Setting point CRT mm 19,00 (P, R and H pump) : +- 0,80 Tolerance mm Uact V 3.100 CRT mm 13.00 ENGINE-SPEED SENSOR Tolerance mm : +/- 0.05 (All P and R pumps not Check H and M pumps) tolerance mm : \pm +/- 0.10 Test with control rod Check value in stop position (P, R and H pump) Engine speed min-1: 60 Amplitude V 1.4 1.700 Tolerance V : +/- 0.6 Uact V CRT mm 6.15 Check Tolerance mm : +/- 0.25 : +/- 1.20 tolerance V Check tolerance mm : +/- 0.30 Engine speed min-1: 600 Difference Amplitude to Setting point Amplitude V : max.1.4 (M pump) Uact V : 3.100 : 12.50 3.100 CRT mm (C) INJECTION PUMP WITH POSITIONER Tolerance mm : ± -0.05 Check TEST POINT V1 tolerance mm : ± -0.10 Rated speed rpm : 750 Check value Uact V 3.350 (mpump) Prestroke solenoid 10.00 Stroke mm 1.700 Uact V Del. quantity cm3/1000 strokes : CRT mm 5.50 332.0 Tolerance mm : +/- 0.25 Tolerance cm3/1000 strokes : +- 1.0 Check : +/- 0.30 tolerance mm Check tolerance cm3/1000s. : +-4.0 Spreed Stop position (P, R and H pump) Tolerance 5.0 cm3/1000 strokes : : Value with Uact V Check tolerance deenergised adjusting magnet cm3/1000s. 9.0 and control rod in FUEL DELIVERY CHARACTERISTICS stop position. CRT mm 0.75 Tolerance mm : +/- 0.25 1000 Rated speed rpm : 3.290 Check Uact V : +/- 0.35 Prestroke solenoid tolerance mm Stroke mm 8.00 Del. quantity cm3/1000 strokes : Stop position (M pump) Uact V 0.720 Tolerance Tolerance Volt : +- 0,065 cm3/1000 strokes : +- 4.0

Check tolerance cm3/1000s.	:	+-	8.0	
Rated speed rpm Jact V	:		500 2.100	
Prestroke solenoi	ď		2.100	
Stroke mm	-:		6.20	
Del. quantity				
cm3/1000 strokes	:		173.0	
Tolerance				
cm3/1000 strokes	:	+-	4.0	
Check tolerance cm3/1000s.			0 0	
LIND/ (UUUS.	•	-	8.0	
TEST POINT L1				
Rated speed rpm	:		300	
Uact V	:		1.500	
Tolerance Volt	:	+-	0.060	
Check tolerance				
Volt Prostraka salarai	:	+	0.080	
Prestroke solenoi: Stroke mm	а •		7.20	
Del. quantity	•		7.20	
cm3/1000 strokes	:		33.0	
Tolerance				
cm3/1000 strokes	:	+-	3.0	
Spreed				
Tolerance			0.0	
cm3/1000 strokes Check tolerance	:		8.0	
cm3/1000s.	•		12.0	
	•			
STARTING FUEL DEL	ΙVΙ	ERY		
Rated speed rpm	:		100	
Uact V	:		2.450	
Prestroke solenoio	b			
Stroke mm	:		7.00	
Del. quantity			405 6	
cm3/1000 strokes	:		185.0	
Tolerance cm3/1000 strokes		4	10.0	
Check tolerance	•	т—	10.0	
cm3/1000s.	:	+-	14.0	
	-			

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 25.11.97 : ISO 4113

Combination No. : 0 400 466 086

Injection pump

Pump designation : PES6A75D410/3RS1326 EP type number : 0 410 476 977

Governor

Governer design. : RSV325...900A7C602L

Governer no. : 0 420 232 320

Cust. part No. :

Customer-spec. information

Customer : KHD

Motor

: F6L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.0

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

har

: 173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Firing order : 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm: 10.25

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 44.0

Tolerance

cm3/1000 strokes : + 0.5

Check tolerance

cm3/1000s. : +- 2.0

Spreed

Tolerance

cm3/1000 strokes : 2.0

Check tolerance

cm3/1000s. :

3.5

Rated speed rpm : 325

Rack travel in mm: 7.20

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 12.0

cm3/1000 strokes	: +-	3.0	+
Check tolerance cm3/1000s.		4.5	†
Spreed	• '	7.7	I
Tolerance			1
	:	2.0	1
Check tolerance			+
cm3/1000s.	:	3.0	+
			+
(B) SETTING OF IN	IECTTON	I DI:MD	+
WITH GOVERNOR	JECITON		Ī
MIIII GOVERNOR			I
			1
			+
GUIDE SLEEVE POSI	TION		+
			+
control loven			+
control lever position degree	: - 3		I
Rated speed rpm		00	I
ridiod opeod . p			1
Rack travel in mm		0.65	+
Tolerance mm	: +-	0.35	+
			+
FULL LOAD DELIVER'	V AT EU	III LOAD STOD	†
FULL LUAD DELIVER	I AI FU	EL LUAU STUP	İ
Rated speed rpm	: 8	80	I
Aneroid pressure	•		1
hPa	:	_	+
Del. quantity			+
cm3/1000 strokes	:	44.0	+
Tolerance		0.5	†
cm3/1000 strokes Check tolerance	: +-	0.5	†
cm3/1000s.	: +-	2.0	I
Spreed		2.0	1
Tolerance			+
cm3/1000 strokes	:	2.0	+
Check tolerance		~ <u>-</u>	+
cm3/1000S.	:	3.5	+
			1
			I
CONTROL LEVER			1
			+
control lever		F/ 0	+
position degree	:	54.0	+
tolerance degree	; +-	4.0	<u>†</u>
RATED SPEED			I
rack travel mm	:	9.20	1
Rated speed rpm		25	+
Tolerance 1/min	: +-	5	+
		/ OB	+
rack travel mm		4.00 60	†
Rated speed rpm Tolerance 1/min	. +-	15	I
		. •	,

rack travel mm : 4.00 Rated speed rpm : 970 Tolerance 1/min : + 15 LOW IDLE control lever position degree : 25.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 325 rack travel mm : 7.70 : **←** 0.10 Tolerance mm Rated speed rpm : 100 CRT mm min. : > 19.50 Testing: Rated speed rpm : rack travel mm : 325 7.20 Tolerance mm : \leftarrow 0.10 rack travel mm : 2.00 Rated speed rpm : 430 Tolerance 1/min : + 30 TORQUE CONTROL Rated speed rpm : 880 rack travel mm : 10.25 Tolerance mm : +- 0.05

+

Rated speed rpm : 500 rack travel mm : 10.30 Tolerance mm : +- 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100

Tolerance

LOW IDLE

Rated speed rpm : 325 Rack travel in mm: 7.20 Tolerance mm : **←** 0.10 Del. quantity cm3/1000 strokes : 12.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : +- 4.5 Spreed Tolerance cm3/1000 strokes : 2.0 Check tolerance cm3/1000s.: 5.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 18.11.97 : ISO 4113

Combination No. : 0 400 876 198

Injection pump

Pump designation : PES6A95D41ORS2416

EP type number : 0 410 896 961

Governor

Governer design. : RSV300...1150A8C616D

: L

Governer no. : 0 420 232 323

Cust. part No. :

Customer-spec. information

Customer : KHD

Motor

: F6L413FR : 140.0

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C temp. °C : 40
Tolerance °C : +- 2.0

40

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

M02

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Frestroke num : 1.95 Tolerance num : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : \leftarrow 0.50

Check

tolerance "NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1140

Rack travel in mm : 10.05 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 99.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
 ‡	CONTROL LEVER
Rated speed rpm : 300	<pre>control lever position degree : 108.0 tolerance degree : +- 4.0</pre>
Rack travel in mm: 5.50 + Tolerance mm: + 0.10 + Del. quantity	RATED SPEED rack travel mm : 9.00
cm3/1000 strokes : 17.0 + Tolerance +	Rated speed rpm : 1185 Tolerance 1/min : +- 5
cm3/1000 strokes : +- 3.0 +- Check tolerance +-	pook though the control of the contr
cm3/1000s. : +- 5.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1230 Tolerance 1/min : +- 15
cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1410
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1265 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever + position degree : - 3 +	control lever
Rated speed rpm : 800	position degree : 74.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Setting point w/out bumper spring
devenue enring	
governor spring + pre-tension +	Rated speed rpm : 300 rack travel mm : 6.00
click setting x : 5.75	Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
+	CRT mm min. : > 19.50
Rated speed rpm : 1140 + Aneroid pressure + hPa : - +	Testing:
Del. quantity + cm3/1000 strokes : 99.0 +	Rated speed rpm : 300 rack travel mm : 5.50
Tolerance +	Tolerance mm : +- 0.10
cm3/1000 strokes : +- 1.0 +- Check tolerance +- 7.0	rack travel mm : 2.00
cm3/1000s. : +- 3.0 +- Spreed +-	Rated speed rpm : 565 Tolerance 1/min : +- 30
Tolerance + cm3/1000 strokes : 3.5 +	TORQUE CONTROL

Dimension a mm : 0.40 1140 Rated speed rpm rack travel mm : 10.05 Tolerance mm : +- 0.05

500 Rated speed rpm : rack travel mm 10.45 Tolerance mm : **←** 0.05

Rated speed rpm : 750 rack travel mm : 10.25 Tolerance mm : +0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa 650 Rated speed rpm : Del. quantity

cm3/1000 strokes : 95.0 Tolerance

cm3/1000 strokes : \leftarrow 1.5

Check tolerance cm3/1000s.: +- 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm 16.00 Tolerance mm : +- 0.20 Del. quantity

cm3/1000 strokes : 125.0 Tolerance

cm3/1000 strokes : +- 5.0 Check tolerance

cm3/1000s.: +-8.0

LOW IDLE

300 Rated speed rpm :

5.50 Rack travel in mm : : +- 0.10 Tolerance mm Del. quantity

cm3/1000 strokes : 17.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance cm3/1000s. : **←** 5.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

: cm3/1000s. 5.5

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Refer to Service Info for test and adjustment instructions. See microcard(s) W400/... : 26.11.97 Edition Test oil : ISO 4113 Combination No. : 9 400 030 607 Injection pump Pump designation : PES4A85D32OLS2820 EP type number : 9 410 037 186 Governor : RSV300...1200A2C2123 Governer design. : -1R : 9 420 034 351 Governer no. Cust. part No. : SIMPSONS Customer-spec. information : S433 Motor TEST BENCH REQUIREMENTS Inlet line : 1.1 Test oil inlet temp. °C 40 Tolerance °C 2.0 Overflow valve : 9 451 037 430 1.5 Inlet press. bar : Test nozzle holde : 0 681 343 009 assembly Opening pressure 173.5 bar 1.5 Tolerance bar : 1 680 750 014 Test lines Outside diameter : 6.0

x tength mm	: 600
REMARKS	
(A) INJECTION PUMP Set equal delivery per values	
BEGINNING OF DELIV	VERY
Test pressure bar Tolerance bar	
Prestroke mm Tolerance mm	: 2.35 : + 0.05
Check tolerance mm	: +- 0.10
Rack travel in mm Tolerance mm	: 10.50 : +- 1.50
Firing order	: 1- 3-4-2
Phasing Tolerance Check	: 0-90-270-360 : +- 0.50
tolerance °NW	: +- 0.75
BASIC SETTING	
Rated speed rpm	: 1200
Rack travel in mm Tolerance mm	: 10.50 : +- 0.05
Del. quantity cm3/1000 strokes	: 65.0
Tolerance cm3/1000 strokes	: + 0.5
Check tolerance cm3/1000s.	: +- 2.5
Spreed	

600

x length mm

x inside diameter :

2.0

Tolerance cm3/1000 strokes : 3.0	theck tolerance cm3/1000s. : 7.0
Check tolerance cm3/1000s. : 7.0	CONTROL LEVER
Rated speed rpm : 300	control lever position degree : 49.0 tolerance degree : +- 4.0
Rack travel in mm : 6.50 Tolerance mm : + 0.10 Del. quantity	control lever position degree : 99.0 tolerance degree : +- 4.0
cm3/1000 strokes : 4.0 Tolerance cm3/1000 strokes : +- 1.0	RATED SPEED . 9.50
Check tolerance cm3/1000s. : +- 1.5 Spreed	+ Rated speed rpm : 1265 + Tolerance 1/min : + 5 +
Tolerance cm3/1000 strokes : 2.0 Check tolerance cm3/1000s. : 3.0	+ rack travel mm : 5.50 + Rated speed rpm : 1295 + Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1510
WITH GOVERNOR	+ rack travel mm : 5.50 + Rated speed rpm : 1310
GUIDE SLEEVE POSITION	+ Tolerance 1/min : + 15 + +
control lever position degree : FREE Rated speed rpm : 800	LOW IDLE
Rack travel in mm: 0.50 Tolerance mm: + 0.20	control lever position degree : 71.0 tolerance degree : + 4.0
governor spring pre-tension click setting x : 4.00	control lever position degree : 21.0 tolerance degree : +- 4.0
FULL LOAD DELIVERY AT FULL LOAD STOP	Setting point w/out bumper spring
Rated speed rpm : 1200 Aneroid pressure hPa : -	Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : +- 0.10
Del. quantity cm3/1000 strokes : 65.0 Tolerance	Rated speed rpm : 100
cm3/1000 strokes : + 0.5 Check tolerance	CRT mm min. : > 19.00
cm3/1000s. : +- 2.5 Spreed	Testing:
Tolerance cm3/1000 strokes : 3.0	+ Rated speed rpm : 300 + rack travel mm : 6.50

: ← 0.10 Tolerance mm

rack travel mm 2.00 Rated speed rpm 590 : +-Tolerance 1/min

TORQUE CONTROL

Rated speed rpm : 1200 10.50 rack travel mm : +- 0.05 Tolerance mm

STARTING FUEL DELIVERY

Rated speed rpm : 100 14.25 rack travel mm : Tolerance mm : +- 0.25 Tolerance

cm3/1000 strokes : + 7.5

Check tolerance

cm3/1000s.: +- 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm: 6.50 Tolerance mm : + 0.10 Del. quantity

cm3/1000 strokes : 4.0 Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.: + 1.5

Spreed Tolerance

cm3/1000 strokes : 2.0

Check tolerance

3.0 cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.12.97 Test oil : 180 4113

Combination No. : 0 402 736 875

Injection pump

Pump designation : PES6P120A120RS7352

EP type number : 0 412 726 923

Governor

Governer design. : RQV350...1000PA1185K

Governer no. : 0 421 815 446

Cust. part No. : 3928169

Customer-spec. information Customer : CDC Motor : 6CTA-A Power KW : 205.1

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.00 Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : ⊹- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery blocking

°NW after s.o.d. : 5.50 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 15.15 Tolerance mm : +- 0.05

80M

	+
Del. quantity cm3/1000 strokes : 235.0	CONTROL LEVER
Tolerance cm3/1000 strokes : + 1.0	control lever position degree : 118.0 tolerance degree : +- 6.0
Check tolerance cm3/1000s. : +- 4.0	+ RATED SPEED + rack travel mm : 13.50
Spreed	Rated speed rpm : 1155 Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 5.0	rack travel mm : 8.00 Rated speed rpm : 1245
Check tolerance cm3/1000s. : 9.0	Tolerance 1/min : +- 5
	+ rack travel mm : 0.50 + Tolerance mm : +- 0.50 + Rated speed rpm : 1350
Rated speed rpm : 375	Thatea opeca i piii . 1050
Rack travel in mm : 6.80 Tolerance mm : + 0.10 Del. quantity	LOW IDLE
cm3/1000 strokes : 27.0 Tolerance	
cm3/1000 strokes : + 3.0 Check tolerance	control lever position degree : 71.0
cm3/1000s. : +- 5.0 Spreed	tolerance degree : +- 6.0
Tolerance	Control Lever difference
cm3/1000 strokes : 8.0 Check tolerance	+ Grad : 47.0 + tolerance degree : +- 6.0
cm3/1000s. : 12.0	+
	+ Setting point w/out bumper spring +
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 275
	CRT mm min. :> 8.20
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing:
	Rated speed rpm : 375
Rated speed rpm : 1000 Aneroid pressure	rack travel mm : 6.80 Tolerance mm : +- 0.10
hPa : 1200	+ Toter ance man
Del. quantity cm3/1000 strokes : 235.0	Rated speed rpm : 425
Tolerance	
cm3/1000 strokes : + 1.0 Check tolerance	+ TORQUE CONTROL + Rated speed rpm : 1000
cm3/1000s. : + 4.0	rack travel mm : 15.15
Spreed	Tolerance mm : +- 0.05
Tolerance cm3/1000 strokes : 5.0	+ Rated speed rpm : 650
Check tolerance	rack travel mm : 13.70
cm3/1000s. : 9.0	+ Tolerance mm : +- 0.20
	Rated speed rpm : 1100

rack travel mm Tolerance mm		Aneroid pressure
		+ hPa : - + Rated speed rpm : 1000
ANEROID/ALTITUDE		Del. quantity
COMPENSATOR TEST		+ cm3/1000 strokes : 103.5
		+ Tolerance + cm3/1000 strokes : +- 2.0
SETTING		+ Check tolerance
Rated speed rpm	• 1000	+ cm3/1000s. : +- 4.0
Pressure hPa		Ŧ
Rated speed rpm	: 1000	STARTING FUEL DELIVERY
Pressure hPa	- 0.00	Potest aread area
rack travel mm Tolerance mm	: 9.90 : +- 0.20	Rated speed rpm : 100 rack travel mm : 11.50
TO COT GIVE THE	, . 0.20	Tolerance mm : +- 0.50
MEASUREMENT		+ Del. quantity
	4845	+ cm3/1000 strokes : 180.0
Rated speed rpm	: 1000	+ Tolerance
Pressure hPa	: 825	+ cm3/1000 strokes : +- 20.0 + Check tolerance
rack travel mm		- check toterance - cm3/1000s. : +- 25.0
Tolerance mm		+
Da	. 7:70	†
Pressure hPa rack travel mm	: 370 : 11.45	İ
Tolerance mm		LOW IDLE
		+
Start interlock		+ Rated speed rpm : 375
		Rack travel in mm: 6.80
Rated speed rpm		Tolerance mm : +- 0.10
Rated speed rpm	: < 290	Del. quantity
Check		+ cm3/1000 strokes : 27.0 + Tolerance
speed 1/min	: > 80	+ cm3/1000 strokes : +- 3.0
Check		+ Check tolerance
speed 1/min	: < 300	+ cm3/1000s. : +- 5.0
		+ Spreed + Tolerance
FUEL DELIVERY CHA	RACTERISTICS	
		Check tolerance
		- cm3/1000s. : 12.0
Aneroid pressure hPa	: 1200	†
Rated speed rpm		I
Del. quantity		
cm3/1000 strokes	: 210.5	+
Tolerance	70	+ End of test specification sheet
cm3/1000 strokes Check tolerance	: +- 3.0	Ţ
cm3/1000s.	: +- 6.0	
Spreed	- -	+
Tolerance	2.2	+
cm3/1000 strokes Check tolerance	: 8.0	†
cm3/1000s.	: 12.0	I
J.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, ,,,,,	\perp

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 03.12.97 Test oil

Combination No. : 0 402 736 906

Injection pump

Pump designation : PES6P120A120RS7416 EP type number : 0 412 726 959

Governor

Governer design. : RQV400...1250PA1060

: -4K

Governer no.

: 0 421 815 514

Cust. part No. : 3928146

Customer-spec. information : CDC Customer : 6BTA-A Motor Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

208.5 Tolerance bar : \leftarrow 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

*NW after s.o.d. : 6.25 Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 160.5	+ Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1690 guide sleeve
Check tolerance	travel mm : 11.50 Tolerance mm : + 0.50
cm3/1000s. : +- 4.0	GUIDE SLEEVE POSITION
Spreed	+
Tolerance cm3/1000 strokes : 8.0	control lever position degree : VH Rated speed rpm : 1390
Check tolerance : 12.0	Rack travel in mm: 12.60
Rated speed rpm : 420	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 1250
Rack travel in mm : 6.00 Tolerance mm : + 0.10	+ Aneroid pressure + hPa : 1200
Del. quantity cm3/1000 strokes : 15.0	Del. quantity cm3/1000 strokes : 160.5
Tolerance cm3/1000 strokes : + 3.0	Tolerance
Check tolerance cm3/1000s. : +- 5.0 Spreed	+ Check tolerance + cm3/1000s. : +- 4.0 + Spreed
Tolerance	+ Tolerance
cm3/1000 strokes : 4.0 Check tolerance	+ cm3/1000 strokes : 8.0 + Check tolerance
cm3/1000s. : 8.0	+ cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 117.0
Rated speed rpm : 1329	tolerance degree : +- 4.0
guide sleeve travel mm : 7.83	RATED SPEED
travel mm : 7.83 Tolerance mm : +- 0.15	+ rack travel mm : 12.60 + Rated speed rpm : 1325
Rated speed rpm : 400	Tolerance 1/min : + 15
guide sleeve	+ rack travel mm : 4.00
travel mm : 1.44	+ Rated speed rpm : 1475
Tolerance mm : + 0.20	Tolerance 1/min : +- 5
Rated speed rpm : 939 guide sleeve	rack travel mm : 0.50 Tolerance mm : +- 0.50
travel mm : 5.18	+ Rated speed rpm : 1550
Tolerance mm : + 0.25	1
Rated speed rpm : 640 guide sleeve	
travel mm : 3.56	+ LOW IDLE

M12

control lever position degree : 71.0 tolerance degree : + 4.0	
Control lever difference Grad : 46.0 tolerance degree : +- 4.0	
Setting point w/out bumper spring	
Rated speed rpm : 300	
CRT mm min. :> 5.80	
Testing:	
Rated speed rpm : 420 rack travel mm : 6.00 Tolerance mm : + 0.10	
Rated speed rpm : 425	
TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 13.65 Tolerance mm : + 0.05	
Rated speed rpm : 800 rack travel mm : 11.85 Tolerance mm : + 0.10	
Rated speed rpm : 500 rack travel mm : 11.60 Tolerance mm : + 0.20	
ANEROID/ALTITUDE COMPENSATOR TEST	_
SETTING	
Rated speed rpm : 1250 Pressure hPa : 1200	
Rated speed rpm : 1250 Pressure hPa : -	
rack travel mm : 10.40 Tolerance mm : + 0.20	
MEASUREMENT	
Rated speed rpm : 1250	
Pressure hPa : 375 rack travel mm : 12.70 Tolerance mm : + 0.30	

Pressure hPa rack travel mm Tolerance mm	: 260 : 11.60 : + 0.20		
Start interlock			
Rated speed rpm Rated speed rpm	: > 200 : < 340		
Check speed 1/min Check	: > 190		
speed 1/min	: < 360		
FUEL DELIVERY CHARACTERISTICS			
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 131.5 : +- 3.0 : +- 6.0 : 8.0 : 12.0 : 1250 : 107.5		
STARTING FUEL DELIVERY Set starting CRT at K-cam.			
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 100 : 14.10 : +- 0.50 : 155.0		

Check	tolerance	
cm7/1000c		

cm3/1000s. : +- 25.0

LOW IDLE

Rated speed rpm	:	420	
Rack travel in mm Tolerance mm	: +-	6.00 0.10	
Del. quantity cm3/1000 strokes Tolerance	:	15.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s.	: +	5.0	
Tolerance cm3/1000 strokes	:	4.0	
Check tolerance cm3/1000s.	:	8.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.12.97 : ISO 4113

Combination No. : 0 402 776 820

Injection pump

Pump designation : PES6P120A720RS7382

EP type number : 0 412 726 943

Governor

Governer design. : RSV400...1100P0A547

: -6

Governer no.

: 0 421 833 488

Cust. part No. : RE501785

Customer-spec. information

Customer : DEERE

Motor

: 6081 AF001

Power KW

: 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60
Tolerance mm : + 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm : 10.50 Tolerance mm : \leftarrow 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

*NW after s.o.d. : 7.50 Tolerance : \leftarrow 0.50

Check tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

14.00 travel

Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

	-
Rack travel in mm : 11.80 Tolerance mm : +- 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 198.0	Rated speed rpm : 1100 Aneroid pressure
Tolerance	- hPa : 1400 - Del. quantity - cm3/1000 strokes : 198.0
Check tolerance cm3/1000s. : + 4.0	- Tolerance - cm3/1000 strokes : +- 1.0 - Check tolerance
Spreed	- cm3/1000S. : +- 4.0 - Spreed - Tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000 strokes : 5.0 Check tolerance
Check tolerance cm3/1000s. : 9.0	- cm3/1000s. : 9.0 - -
	CONTROL LEVER
Rated speed rpm : 400	control lever position degree : 95.0
Rack travel in mm: 5.85 - Tolerance mm: +- 0.10 - Del. quantity	- tolerance degree : +- 4.0 - - RATED SPEED
cm3/1000 strokes : 28.5 Tolerance	rack travel mm : 10.80 Rated speed rpm : 1170
<pre>cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 5.0</pre>	- Tolerance 1/min : +- 5 - - rack travel mm : 4.00
Spreed Tolerance	Rated speed rpm : 1225 Tolerance 1/min : +- 5
cm3/1000 strokes : 8.0 - Check tolerance - cm3/1000s. : 12.0 -	rack travel mm : 0.85 Tolerance mm : +- 0.55
-	- Rated speed rpm : 1300 -
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- rack travel mm : 4.00 - Rated speed rpm : 1230 - Tolerance 1/min : +- 15 -
GUIDE SLEEVE POSITION	_
control lever	- LOW IDLE
position degree : - 3 Rated speed rpm : 800	- - control lever - position degree : 72.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	- tolerance degree : +- 4.0 -
governor spring pre-tension	- Setting point w/out bumper spring - - Rated speed rpm : 400
click setting x : 3.25	rack travel mm : 5.35 Tolerance mm : +- 0.10

Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : 400 rack travel mm : 5.85 Tolerance mm : + 0.10 TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 11.80 Tolerance mm : + 0.05 Rated speed rpm : 800 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 500 Pressure hPa : 1400 Rated speed rpm : 500 : Pressure hPa rack travel mm : 8.75 Tolerance mm : + 0.10 MEASUREMENT Rated speed rpm : 500 Pressure hPa : 880 rack travel mm : 11.50 Tolerance mm : + 0.20Pressure hPa : 450 rack travel mm : 9.70 Tolerance mm : +- 0.05 FUEL DELIVERY CHARACTERISTICS Aneroid pressure : 1400 hPa Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 211.0 Tolerance

Check tolerance cm3/1000s. : + 6.0 Aneroid pressure Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance : +- 4.0 cm3/1000s.STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.50 : +- 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 105.0 Tolerance cm3/1000 strokes : +- 20.0Check tolerance cm3/1000s. : +- 25.0 LOW IDLE Rated speed rpm : 400 Rack travel in mm: 5.85 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : +- 3.0Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

End of test specification sheet

cm3/1000 strokes : +- 3.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 02.12.97 : ISO 4113

Test oil

Combination No. : 0 402 776 825

Injection pump

Pump designation : PES6P120A720RS7382

EP type number : 0 412 726 943

Governor

Governer design. : RSV400...1100P0A574

: -7

Governer no.

: 0 421 833 496

Cust. part No. : RE501786

Customer-spec. information

Customer : DEERE

Motor

: 6081 AF001

Power KW

: 205.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C

Tolerance °C

2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : +-

3,60

: +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50

Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing

: 0-60-120-180-240

: -300

Start of delivery mark

*NW after s.o.d. : 7.50

Tolerance

: +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel

14.00

Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

M18

+	
Rack travel in mm : 11.80 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 198.0	Rated speed rpm : 1100 Aneroid pressure hPa : 1400
Tolerance cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 198.0 Tolerance
Check tolerance cm3/1000s. : +- 4.0	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Spreed	Spreed Tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	
+	CONTROL LEVER
Rated speed rpm : 400	control lever position degree : 95.0
Rack travel in mm: 5.85 Tolerance mm: + 0.10 Del. quantity	tolerance degree : +- 4.0 RATED SPEED
cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : + 3.0	rack travel mm : 10.80 Rated speed rpm : 1170 Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : + 5.0 + 5.0	rack travel mm : 4.00
Tolerance + cm3/1000 strokes : 8.0 +	Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : 12.0	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1230 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
control lever position degree : - 3	LOW IDLE
Rated speed rpm : 800 Rack travel in mm : 0.50	<pre>control lever position degree : 72.0 tolerance degree : +- 4.0</pre>
Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring pre-tension click setting x : 3.25	Rated speed rpm : 400 rack travel mm : 5.35 Tolerance mm : +- 0.10

Rated speed rpm 100 CRT mm min. : > 19.00 Testing: 400 Rated speed rpm 5.85 rack travel mm : + 0.10Tolerance mm TORQUE CONTROL : 1100 Rated speed rpm 11.80 rack travel mm Tolerance mm : +- 0.05 Rated speed rpm 800 12.40 rack travel mm : : + 0.10 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING 500 Rated speed rpm : Pressure hPa : 1400 500 Rated speed rpm Pressure hPa 8.75 rack travel mm : + 0.10Tolerance mm **MEASUREMENT** Rated speed rpm 500 Pressure hPa 880 11.50 rack travel mm : +- 0.20 Tolerance mm 450 Pressure hPa 9.70 rack travel mm : +- 0.05 Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa 1400 Rated speed rpm : 800 Del. quantity cm3/1000 strokes : 211.0 Tolerance cm3/1000 strokes : \leftarrow 3.0

Check tolerance cm3/1000s. : +- 6.0 Aneroid pressure 500 Rated speed rpm : Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes : +- 2.0Check tolerance cm3/1000s. : +- 4.0 STARTING FUEL DELIVERY Rated speed rpm rack travel mm : 20.50 : **←** 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 105.0 Tolerance cm3/1000 strokes : +- 20.0Check tolerance cm3/1000s. : +- 25.0 LOW IDLE Rated speed rpm : 400 Rack travel in mm : 5.85 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. : +-5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 02.12.97 : ISO 4113

Combination No. : 0 402 996 311

Injection pump

Pump designation: PES6P12OA72ORS8512

: -4

EP type number

: 0 412 926 214

Governor

Governer design. : RE30

Governer no.

: 0 421 890 024

Cust. part No. : 313 GC 5225 P2

Customer-spec. information

Customer

: MACK

Motor

: E7

TEST BENCH REQUIREMENTS

Inlet line

: 4.2

Test oil inlet

temp. °C

Tolerance °C

2.0

Overflow valve : 3 413 359 008

Inlet press. bar :

3.0

Tolerance bar : +-

0.1

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

har

208.5

Tolerance bar

: +- 1.5

Test lines

: 1 680 750 008

Outside diameter : 6.0

M21

x inside diameter : 2.0 x length mm : 600

REMARKS

Pump-specific values in Section (B) must be observed!

(A) INJECTION PUMP SETTINGS

No basic setting.

Setting of constant delivery

under Section C.

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : +- 1.0

Prestroke mm 4.20

Tolerance mm : +- 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm : 12.00

: +- 0.20 Tolerance mm

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

(B) POSITIONER TESTING Warm-up time: 3 minutes at n=600 min-1, Uact = 2.5 V

TESTING & SETTING POSITION	RACK TRAVEL SENSOR	+ Starting position	: 1,00 on
Engine speed min-	1: 0	(M pump) + Uact V	: 4,500
Setting point (P, R and H pump)		Uact V Tolerance Volt CRT mm Tolerance mm	: +- 0,115 : 19,00 : +- 0,80
Uact V CRT mm Tolerance mm Check tolerance mm Check value		ENGINE—SPEED SEN (All P and R pum H and M pumps) Test with contro	ps not ol rod
(P, R and H pump)		in stop position Engine speed mir	
Uact V CRT mm Tolerance mm Check	: 1.70C : 6.15 : +/- 0.25	Amplitude V Tolerance V Check tolerance V	: 1.4 : +/- C.6
tolerance mm	: +/- 0.30	Engine speed mir	-1: 600
Setting point (M pump)		+ Amplitude to + Amplitude V	: max.1.4
Uact V CRT mm Tolerance mm Check tolerance mm		+ (c) INJECTION FL FUEL DELIVERY CH	MP WITH POSITIONER ARACTERISTICS
Check vatue (M pump)	: +/- 0.10	Rated speed rpm Uact V	
Uact V CRT mm Tolerance mm	: 1.700 : 5.50 : +/- 0.25	 Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance 	
Check tolerance mm	: +/- 0.30	+ cm3/1000s. + Spreed	: +- 7.0
Stop position (P, R and H pump)		Tolerance cm3/1000 strokes Check tolerance	: 8.0
Uact V deene	: Value with rgised adjusting magnet and control rod in	cm3/1000s.	: 14.0
CRT mm Tolerance mm Check tolerance mm Stop position (M pump) Uact V	stop position. : 0.75 : +/- 0.25 : +/- 0.35	Rated speed rpm Uact V Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	
Tolerance Volt	: +- 0,065	下	

Telerance cm3/1000 strokes	: 16.0	
Check tolerance		
cm3/1000s.	: 18.0	
Rated speed rpm	: 450	
Jact V	: 1.310	
Tolerance cm3/1000 strokes	: +- 1.0	
Check tolerance cm3/1000s.	: + 3.0	
Spreed Folerance		
cm3/1000 strokes	: 6.0	
Check tolerance cm3/1000S.	: 14.0	
TEST POINT L1		
Rated speed rpm	: 325	
Rated speed rpm	: 325	
Jact V	: 1.310	
Jact V	: 1.310	
Folerance Volt	: ← 0.060	
heck tolerance Olt	: ← 0.070	
el. quantity	. 7 0.070	
cm3/1000 strokes	: 33.0	
Del. quantity		
cm3/1000 strokes	: 33.0	
Tolerance		
cm3/1000 strokes	: - 3.0	
Spreed Sheck tolerance		
m3/100CS.	: 14.0	
Check tolerance	1 17.0	
m3/1000s.	: 14.0	
STARTING FUEL DEL	IVERY	
Rated speed rpm	: 100	
Bact V	: 4.700	
el. quantity		
m3/1000 strokes	: 195.0	
olerance	10.0	
m3/1000 strokes heck tolerance	: ← 19.0	
m3/1000s.	: 22.0	
Spreed		
Tolerance cm3/1000 strokes	: 40.0	
Check tolerance	. +0.0	
cm3/1000s.	: 50.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.11.97 : ISO 4113

Combination No. : 0 401 846 993

Injection pump

Pump designation : PE6P110A720RS3348 EP type number : 0 411 816 797

Governor

Governer design. : RQV250...1200PA413

: -8

Governer no.

: 0 421 814 147

Cust. part No. : 612.60.03.0217

Customer-spec. information

Customer : SNF

Motor : WD612.36 Power KW : 135.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C Tolerance °C · +- 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 210 Tolerance L/h : +- 10.0

Test nozzle holde

: 1 681 343 009 assembly

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.65 Tolerance mm : +- 0.50

Check

: + 0.10tolerance mm

Rack travel in mm : 14.30 Tolerance mm : \leftarrow 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance $^{\circ}NW$: + 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 14.30 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 145.0

Tolerance	🕂 guide sleeve
cm3/1000 strokes : +- 1.0	† travel mm : 10.00
	+ Tolerance mm : +- 0.25
Check tolerance	
cm3/1000s. : +- 4.0	Rated speed rpm : 1570
CIID7 (0003 4.0	
Spreed	† travel mm : 11.50
	+ Tolerance mm : +- 0.50
Tolerance	}
cm3/1000 strokes : 4.0	
	GUIDE SLEEVE POSITION
Check tolerance	
7	T
cm3/1000s. : 7.5	T
	+ control lever
	† position degree : − 1
	+ Rated speed rpm : 1390
Rated speed rpm : 250	
•	Rack travel in mm: 12.80
Rack travel in mm : 5.00	+ Tolerance mm : + 1.30
Tolerance mm : + 0.10	1 Occiding 11.50
* **	Ţ
Del. quantity	PHILL LARS AND THE PARTY AND T
cm3/1000 strokes : 12.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	†
cm3/1000 strokes : +- 3.0	+ Rated speed rpm : 1200
Check tolerance	Aneroid pressure
cm3/1000s. : +- 6.0	+ hPa : 700
Spreed	Del. quantity
Tolerance	+ cm3/1000 strokes : 145.0
	+ Tolerance
Check tolerance	+ cm3/1000 strokes : $+$ 1.0
cm3/1000s. : 7.5	† Check tolerance
	+ cm3/1000s. : +- 4.0
	+ Spreed
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : 4.0
WITT GOVERNOON	+ Check tolerance
	- + cm3/1000s. : 7.5
GUIDE SLEEVE TRAVEL	†
	+
Rated speed rpm : 1257	
guide sleeve	- CONTROL LEVER
travel mm : 7.36	+
Tolerance mm : + 0.15	+ control lever
	position degree : 103.0
Rated speed rpm : 250	tolerance degree : +- 4.0
	Local dince degree . 4.0
guide steeve	T DATES OFFER
travel mm : 0.44	+ RATED SPEED
Tolerance mm : +- 0.20	+ rack travel mm : 13.30
	+ Rated speed rpm : 1245
Rated speed rpm : 1080	+ Tolerance 1/min : +- 5
guide sleeve	+
travel mm : 6.04	rack travel mm : 4.00
Tolerance mm : +- 0.25	+ Rated speed rpm : 1375
TOTAL CHANGE OF U.C.	
Date I award on 7/0	† Tolerance 1/min : +- 15
Rated speed rpm : 740	†
guide steeve	+ rack travel mm : 0.50
travel mm : 4.26	† Tolerance mm : +- 0.50
Tolerance mm : + 0.25	Rated speed rpm : 1500
	1
Rated speed rpm : 1458	1
Rated speed rpm : 1458	+

LOW IDLE

control lever

position degree : 69.0 tolerance degree : +-4.0

Setting point w/out bumper spring

Rated speed rpm 150 :

CRT mm min. : > 6.50

Testing:

Rated speed rpm 250 rack travel mm 5.00 Tolerance mm : + 0.10

rack travel mm 2.00 Rated speed rpm 360 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm 1200 rack travel mm 14.30 Tolerance mm : ← 0.05

700 Rated speed rpm rack travel mm 14.30 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

500 Rated speed rpm Pressure hPa 700 rack travel mm 14.30 Tolerance mm : + 0.05

500 Rated speed rpm Pressure hPa rack travel mm 12.80 : + 0.10Tolerance mm

MEASUREMENT

Rated speed rpm 500

Pressure hPa 320 13.30 rack travel mm Tolerance mm : +- 0.05

Pressure hPa 410 rack travel mm 13.80 : +- 0.10 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 700 Rated speed rpm 700 Del. quantity

cm3/1000 strokes: 139.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. : +-6.0

Aneroid pressure

hPa Rated speed rpm 500

Del. quantity

cm3/1000 strokes : 104.0 Tolerance

cm3/1000 strokes : +-

1.0 Check tolerance

cm3/1000s.: +-

STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 12.80 Tolerance mm : +- 0.10

Del. quantity

cm3/1000 strokes : 118.0

Tolerance

cm3/1000 strokes : - 10.0

Check tolerance

cm3/1000s. : +- 14.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.00 Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 12.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s.: +-6.0

Spreed

Tolerance cm3/1000 strokes : 4.5 Check tolerance cm3/1000s. : 7.5

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 25.11.97 Edition Edition : 25.71.97
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump

Pump designation : PES6P110A320RS3329 EP type number : 0 412 016 743

Governor

Governer design. : RQ325...1250PA1370

Governer no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information Customer : DAF Motor : NS177M Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

: 40 temp. °C temp. "C : 40 Tolerance "C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity

min. L/h : 140
Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter: 6.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.03 Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 12.25 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25 Tolerance mm : \leftarrow 0.05

Del. quantity	guide sleeve travel mm : 3.48
cm3/1000 strokes : 149.5 -	Tolerance mm : +- 0.10
Tolerance - cm3/1000 strokes : + 1.0 -	Rated speed rpm : 590 guide sleeve
Check tolerance cm3/1000s. : + 4.0	travel mm : 6.00 Tolerance mm : + 0.10
Spreed	Rated speed rpm : 1460 guide sleeve
Tolerance - cm3/1000 strokes : 4.0 -	travel mm : 11.50 Tolerance mm : +- 0.50
	CLYDE CLEENE DOCTTON
Check tolerance cm3/1000s. : 7.5	GUIDE SLEEVE POSITION
	Rated speed rpm : 600
	Rack travel in mm : 20.00
Rated speed rpm : 325	↑ Tolerance mm : + 0.80
Rack travel in mm: 4.40 - Tolerance mm: + 0.10 -	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity	+ FOLL LOAD DECIVERY AT FULL LOAD STOP
cm3/1000 strokes : 26.0 - Tolerance -	Rated speed rpm : 1000 Aneroid pressure
cm3/1000 strokes : + 2.5	hPa : 1500
Check tolerance - cm3/1000s. : +- 6.0 -	Del. quantity cm3/1000 strckes : 149.5
Spreed -	Tolerance
Tolerance - cm3/1000 strokes : 8.0 -	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance	cm3/1000s. : +- 4.0
cm3/1000s. : 12.0 -	Spreed Tolerance
-	cm3/1000 strokes : 4.0
(B) SETTING OF INJECTION PUMP	Check tolerance cm3/1000s. : 7.5
WITH GOVERNOR	
GUIDE SLEEVE TRAVEL	
-	CONTROL LEVER
Rated speed rpm : 1292 - guide sleeve -	t control lever
travel mm : 6.37	position degree : 94.0
Tolerance mm : + 0.15	tolerance degree : +- 4.0
Rated speed rpm : 325	RATED SPEED
guide sleeve - travel mm : 1.99 -	rack travel mm : 11.25 Rated speed rpm : 1290
Tolerance mm : + 0.20	Tolerance 1/min : +- 5 Check
Rated speed rpm : 1000 - guide sleeve	speed 1/min : + 10
travel mm : 6.00	rack travel mm : 4.00
Tolerance mm : + 0.10	Rated speed rpm : 1365 Tolerance 1/min : +- 15
Rated speed rpm : 426	Check
٦	} speed 1/min : + 20

Rated speed rpm : 1500 LOW IDLE control lever position degree : 72.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 225 CRT mm min. :> 6.50Testing: Rated speed rpm : 325
rack travel mm : 4.40 : +- 0.10 Tolerance mm rack travel mm : 2.00 Rated speed rpm : 385 Tolerance 1/min : + 20 TORQUE CONTROL Rated speed rpm : 1000 rack travel mm : 12.25 Tolerance mm : + 0.05 Rated speed rpm : 1250 rack travel mm : 12.25 Tolerance mm : \leftarrow 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 600 Pressure hPa : 1000 rack travel mm : 12.25 Tolerance mm : \leftarrow 0.05 Rated speed rpm : 600 Pressure hPa : - rack travel mm : 6.80

Rated speed rpm : 600 Pressure hPa : 430 rack travel mm : 10.90 Tolerance mm : \leftarrow 0.05 Pressure hPa : 220 rack travel mm : 8.10 Tolerance mm : +- 0.10 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa Rated speed rpm : 1000 Del. quantity cm3/1000 strokes : 92.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0

LOW IDLE Rated speed rpm : 325 Rack travel in mm: 4.40 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 strokes : +- 2.5Check tolerance cm3/1000S. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

End of test specification sheet

MEASUREMENT

Tolerance mm : + 0.20

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition Test oil

: 02.12.97 : ISO 4113

Combination No. : 0 402 066 712

Injection pump

Pump designation : PES6P120A120RS3358

EP type number : 0 412 026 784

Governor

Governer design. : RSV475...1200P2A675

Governer no. : 0 421 833 594

Cust. part No. : 3283573

Customer-spec. information

Customer : CDC

: 6BTA-590 ELITE : 138.0 Motor

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40

Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 100 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 har

Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : \leftarrow 0.10

Rack travel in mm : 10.50

Tolerance mm : \leftarrow 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 7.75

Tolerance : +- 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

+	
Rack travel in mm : 11.30 + Tolerance mm : + 0.05 +	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 140.0	Rated speed rpm : 1200 Aneroid pressure
Tolerance + 1.0 +	hPa : 1500 Del. quantity cm3/1000 strokes : 140.0
Check tolerance	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Spreed	cm3/1000s. : +- 3.0 Spreed
Tolerance cm3/1000 strokes : 4.0	Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	cm3/1000s. : 7.5
<u> </u>	CONTROL LEVER
Rated speed rpm : 485	control lever position degree : 104.0
Rack travel in mm: 5.30 + Tolerance mm: : + 0.10 + Del. quantity +	tolerance degree : +- 4.0
cm3/1000 strokes : 21.0 + Tolerance +	RATED SPEED rack travel mm : 10.30 Rated speed rpm : 1265
cm3/1000 strokes : +- 2.0 +- Check tolerance cm3/1000s. : +- 4.5 +-	Tolerance 1/min : +- 5 rack travel mm : 4.00
Spreed	Rated speed rpm : 1345 Tolerance 1/min : +- 15
cm3/1000 strokes : 6.0 + Check tolerance cm3/1000s. : 9.0 + Check tolerance cm3/1000s.	rack travel mm : 0.85 Tolerance mm : +- 0.55
CIID/ 10003.	Rated speed rpm : 1475
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
control lever	LOW IDLE
position degree : -3 Rated speed rpm : 800	control lever position degree : 82.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	tolerance degree : +- 4.0
governor spring + pre-tension +	Setting point w/out bumper spring Rated speed rpm : 485
click setting x : 3.50	rack travel mm : 4.80 Tolerance mm : +- 0.10

Tankina	
Testing: Rated speed rpm rack travel mm Tolerance mm	: 485 : 5.30 : +- 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 605 : +- 30
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1200 : 11.30 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	: 750 : 11.30 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 11.30 : ← 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 9.00 : +- 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 900 : 10.90 : +- 0.20
Pressure hPa rack travel mm Tolerance mm	: 560 : 9.55 : +- 0.05
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1500 : 750

Tolerance cm3/1000 strokes Check tolerance	: +-	3.0
cm3/1000s. Spreed	: +-	6.0
Tolerance cm3/1000 strokes Check tolerance	:	8.0
cm3/1000s.	:	12.0
-,		
Aneroid pressure		
hPa Rated speed rpm	:	- 500
Del. quantity	•	
cm3/1000 strokes Tolerance	:	97.0
cm3/1000 strokes	: +-	2.0
Check tolerance cm3/1000s.	• +	4.0
CIII 27 1 2000 .	• '	4.0
STARTING FUEL DEL	IVERY	
Rated speed rpm		100
rack travel mm		20.25 0.75

STARTING FUEL DEL.	ΤΛΙ	EKI	
Rated speed rpm rack travel mm Tolerance mm	:	+	100 20.25 0.75
Del. quantity cm3/1000 strokes Tolerance	:		170.0
cm3/1000 strokes Check tolerance	:	-!	20.0
cm3/1000s.	:	+-	25.0

LOW IDLE	
Rated speed rpm	: 485
Rack travel in mm Tolerance mm Del. quantity	5.30 : +- 0.10
cm3/1000 strokes	: 21.0
cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000S. Spreed	: +- 4.5
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000s.	: 9.0

End of test specification sheet

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 157.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 03.12.97 : ISO 4113

Combination No. : 0 402 074 700A

Injection pump

Pump designation : PES4P110B720RS3383 EP type number : 0 412 014 701

Governor

Governer design. : RSV300...1100P1A667

Governer no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information

Customer : LIEBHERR

Motor

: D 924 TI-E A2 : 149.0

Power KW

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

: +- 2.0

Overflow valve : 1 417 413 049

Inlet press. bar :

1.5

Tolerance bar : +- 0.1

Tolerance l/h: +- 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 207.0

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm :

600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 3.20 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50

Tolerance mm : \leftarrow 1.50

Firing order : 4-2-1-3

: 0-90-180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no.

: 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm : 13.85

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 203.0

Tolerance + 1.0 +	Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : + 3.5	Check tolerance cm3/1000s. : +- 3.5 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. 7.5	CONTROL LEVER
	control lever position degree : 99.0
Rated speed rpm : 500	tolerance degree : +- 4.0
Rack travel in mm: 4.60 Tolerance mm: +- 0.10 Del. quantity cm3/1000 strokes: 24.0	RATED SPEED rack travel mm : 12.85 Rated speed rpm : 920 Tolerance 1/min : +- 5
Tolerance + 3.0 + Check tolerance +	rack travel mm : 4.00 Rated speed rpm : 980
cm3/1000s. : + 5.5 + 5.5	Tolerance 1/min : +- 15
Tolerance + cm3/1000 strokes : 4.5 + Check tolerance + cm3/1000 strokes : 4.5 + cm3/1000 strokes	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1200
cm3/1000s. : 7.5	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1000 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 80.0 tolerance degree : +- 4.0
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	Setting point w/out bumper spring
governor spring + pre-tension + click setting x : 4.50 +	Rated speed rpm : 500 rack travel mm : 2.80 Tolerance mm : +- 0.10
	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 500 rack travel mm : 4.60 Tolerance mm : + 0.10
Rated speed rpm : 880 + Aneroid pressure +	
hPa : 1500 Del. quantity cm3/1000 strokes : 203.0	rack travel mm : 2.00 Rated speed rpm : 595 Tolerance 1/min : +- 50
	. 3 CO. WITCO 17 WITTE 6

		+ Aneroid pressure
TODOLIC CONTROL		+ hPa : 1500
TORQUE CONTROL Rated speed rpm	. 880	+ Rated speed rpm : 700 + Del. quantity
rack travel mm		- cm3/1000 strokes : 216.0
Tolerance mm		+ Tolerance
		+ cm3/1000 strokes : $+$ 3.0
Rated speed rpm	: 500	- Check tolerance
rack travel mm	: 13.90	+ cm3/1000s. : +- 6.0
Tolerance mm	: +- 0.10	†
Dahad amaad uum	. 700	A
Rated speed rpm	: 700	+ Aneroid pressure + hPa : -
rack travel mm Tolerance mm	· + 0 10	Rated speed rpm : 500
rocci di ice nan		+ Del. quantity
		+ cm3/1000 strokes : 170.0
ANEROID/ALTITUDE		+ Tolerance
COMPENSATOR TEST		+ cm3/1000 strokes : +- 1.0
		+ Check tolerance
CETTANC		+ cm3/1000s. : $+- 3.5$
SETTING		†
Rated speed rom	: 500	I
Rated speed rpm Pressure hPa	: 1500	STARTING FUEL DELIVERY
rack travel mm	: 13.85	+
Tolerance mm		Rated speed rpm : 100
		+ rack travel mm : 20.50
Rated speed rpm		+ Tolerance mm : + 0.50
Pressure hPa	: -	Del. quantity
rack travel mm		+ cm3/1000 strokes : 150.0
Tolerance mm	: +- 0.20	+ Tolerance + cm3/1000 strokes : +- 15.0
MEASUREMENT		Check tolerance
TIETOONE IETT		+ cm3/1000s. : +- 19.0
Rated speed rpm	: 500	+
		+
Pressure hPa	: 830	†
rack travel mm	: 13.20	101 701 5
Tolerance mm	: +- 0.05	+ LOW IDLE
Pressure hPa	: 750	Rated speed rpm : 500
rack travel mm	: 12.10	+ Nated Speed 1 pm : 300
Tolerance mm	: +- 0.20	Rack travel in mm: 4.60
		+ Tolerance mm : +- 0.10
		+ Del. quantity
FUEL DELTUEDY CHA	DA OTEDIOTICO	+ cm3/1000 strokes : 24.0
FUEL DELIVERY CHA	IRACTERISTICS	+ Tolerance + cm3/1000 strokes : +- 3.0
·····		+ Check tolerance
Aneroid pressure		+ cm3/1000s. : +- 5.5
hPa	: 1500	Spreed
Rated speed rpm		+ Tolerance
Del. quantity		+ cm3/1000 strokes : 4.5
cm3/1000 strokes	: 230.0	+ Check tolerance
Tolerance	. 7.0	+ cm3/1000s. : 7.5
cm3/1000 strokes Check tolerance	: +- 3.0	1
cm3/1000s.	: + 6.0	I
J		

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 28.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 646 659

Injection pump

Pump designation: PE6P120A720RS7283-1

EP type number : 0 412 626 945

Governor

Governer design. : RQV300...1100PA1061

: -2K

: 0 421 815 465 Governer no.

Cust. part No. : 615.60.08.0304

Customer-spec. information : SNF Customer

: WD615.50 Motor Power KW : 200.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 : +- 1.5 Tolerance bar

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 7.35

Check

tolerance mm : +- 0.10

Rack travel in mm : 14.00 Tolerance mm : **←** 0.50

Firing order : 1-5-3-6-2-

: 4.

Phasing : 0-60-120-180-240

: -300

: ÷- 0.50 Tolerance

Check

tolerance °NW : +- 0.75

Start of delivery blocking

Tolerance : \leftarrow 0.10

Check

tolerance °NW : **←** 0.75

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.30

Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 244.0

	+ Rated speed rpm : 364
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.0	travel mm : 2.49
Charles A. Language	Tolerance mm : + 0.25
Check tolerance	t Dated aread area (200
$cm3/1000s.$: \leftarrow 4.0	+ Rated speed rpm : 480 + guide sleeve
Spreed	travel mm : 3.56
	+ Tolerance mm : +- 0.25
Tolerance	+
cm3/1000 strokes : 6.0	+ Rated speed rpm : 1390
	+ guide sleeve
Check tolerance cm3/1000s. : 9.0	+ travel mm : 13.50
cm3/1000s. : 9.0	Tolerance mm : +- 0.50
	→ GUIDE SLEEVE POSITION
Rated speed rpm : 300	}
- 1	†
Rack travel in mm : 6.30 Tolerance mm : +- 0.10	+ control lever
Tolerance mm : +- 0.10 Del. quantity	position degree : - 1
cm3/1000 strokes : 27.5	+ Rated speed rpm : 1230
Tolerance	Rack travel in mm : 12.30
cm3/1000 strokes : +- 3.0	+ Tolerance mm : +- 1.30
Check tolerance	+
cm3/1000s. : +- 6.0	+
Spreed	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes : 8.0	t Dated aread are 1100
Check tolerance	+ Rated speed rpm : 1100 + Aneroid pressure
cm3/1000s. : 12.0	hPa : 1200
	Del. quantity
	+ cm3/1000 strokes : 244.0
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : + 1.0
	+ Check tolerance + cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAVEL	- Spreed
30101 022210 11111122	+ Tolerance
Rated speed rpm : 1156	+ cm3/1000 strokes : 6.0
guide sleeve	+ Check tolerance
travel mm : 10.32	+ cm3/1000s. : 9.0
Tolerance mm : +- 0.25	1
Rated speed rpm : 300	
guide sleeve	+ CONTROL LEVER
travel mm : 1.64	+
Tolerance mm : +- 0.25	† control lever
	+ position degree : 119.0
Rated speed rpm : 817	tolerance degree : +- 4.0
guide sleeve travel mm : 6.93	RATED SPEED
Tolerance mm : +- 0.25	rack travel mm : 12.30
TO COT OF THE TOTAL OF THE TOTA	Rated speed rpm : 1145
Rated speed rpm : 314	+ Tolerance 1/min : +- 8
guide sleeve	+
travel mm : 1.82	rack travel mm : 4.00
Tolerance mm : + 0.25	+ Rated speed rpm : 1255
	+ Tolerance 1/min : +- 15

rack travel mm Tolerance mm Rated speed rpm	: +- 0.75
LOW IDLE	
control lever position degree tolerance degree	: 75.0 : +- 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 8.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 6.30 : + 0.10
Rated speed rpm	: 314
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 13.30 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 12.15 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 900 : 12.90 : ⊢ 0.15
Rated speed rpm rack travel mm Tolerance mm	: 500 : 12.10 : + 0.15
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1100 : 1200 : 13.30 : + 0.05

Pressure hPa rack travel mm Tolerance mm	: - : 11.10 : + 0.10
MEASUREMENT	
Rated speed rpm	: 1100
Pressure hPa rack travel mm Tolerance mm	: 500 : 11.80 : +- 0.10
Pressure hPa rack travel mm Tolerance mm	: 700 : 12.75 : +- 0.05
Start interlock	······································
Rated speed rpm Rated speed rpm	: > 100 : < 22L
Check speed 1/min	: > 80
Check speed 1/min	: < 240
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa	: 1200
Rated speed rpm	
Del. quantity cm3/1000 strokes	: 240.0
Tolerance	. 7.0
cm3/1000 strokes	: +- 3.0

cm3/1000 strokes Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance 12.0 cm3/1000s.Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 223.0 Tolerance cm3/1000 strokes : +-Check tolerance cm3/1000s. 4.0 Spreed Tolerance cm3/1000 strokes : 8.0

Rated speed rpm : 1100

Check tolerance : 12.0 cm3/1000s.

STARTING FUEL DELIVERY

Del. quantity

cm3/1000 strokes : 160.0

Tolerance

cm3/1000 strokes : \leftarrow 20.0

Check tolerance

cm3/1000s. : +- 24.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.30

Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 27.5

Tolerance

cm3/1000 strokes : \leftarrow 3.0

Check tolerance

cm3/1000s. : +- 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.11.97 : ISO 4113

Combination No. : 0 402 648 705

Injection pump

Pump designation : PE8P120A320LS7913 EP type number : 0 412 628 928

Governor

Governer design. : RQV350...1050PA1358

Governer no. : 0 421 814 201

Cust. part No. : 0270742402

Customer-spec. information

Customer : MB-NFZ

Motor : OM442LA Euromot Motor : 0M442LA Power KW : 320.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C

Overflow valve : 2 417 413 077

Inlet press. bar : 2.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 5.25 Tolerance mm : +- 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : +- 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40 Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes	: 227.0	+ Tolerance mm : +- 0.25
Tolerance		+ Rated speed rpm : 1204 + guide sleeve
cm3/1000 strokes	: + 1.0	travel mm : 10.00 Tolerance mm : + 0.25
Check tolerance cm3/1000s.	: +- 4.0	Rated speed rpm : 1300
		+ guide sleeve
Spreed		travel mm : 11.50 Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes	: 6.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s.	: 9.0	GOIDE SELEVE POSITION
		control lever position degree : - 1
		+ Rated speed rpm : 1150
Rated speed rpm	: 350	+
Rack travel in mm	n · 5 30	+ Rack travel in mm : 13.05 + Tolerance mm : +- 1.30
Tolerance mm		Totel ance mm
Del. quantity	40.0	
cm3/1000 strokes Tolerance	: 19.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes	: +- 3.0	Rated speed rpm : 1050
Check tolerance		+ Aneroid pressure
cm3/1000s. Spreed	: + 6.0	+ hPa : 1000 + Del. quantity
Tolerance		+ cm3/1000 strokes : 227.0
cm3/1000 strokes	: 8.0	+ Tolerance
Check tolerance cm3/1000s.	: 12.0	+ cm3/1000 strokes : +- 1.0 + Check tolerance
	. 12.0	+ cm3/1000s. : +- 4.0
4-1		Spreed
(B) SETTING OF IN WITH GOVERNOR	JJECTION PUMP	+ Tolerance + cm3/1000 strokes : 6.0
WITH GOVERNOR		+ Check tolerance
		- cm3/1000s. : 9.0
GUIDE SLEEVE TRAV	/EL	‡
Rated speed rpm	: 1097	+
guide sleeve travel mm	: 7.85	+ CONTROL LEVER
Travel mm Tolerance mm	: 7.85 : + 0.15	t control lever
		position degree : 117.0
Rated speed rpm	: 350	tolerance degree : +- 4.0
guide sleeve travel mm	: 1.48	RATED SPEED
Tolerance mm	: + 0.20	rack travel mm : 13.40
Dated apod nom	. 000	+ Rated speed rpm : 1085
Rated speed rpm guide sleeve	: 900	+ Tolerance 1/min : +- 5
travel mm	: 5.69	rack travel mm : 4.00
Tolerance mm	: + 0.25	+ Rated speed rpm : 1175
Rated speed rpm	: 580	+ Tolerance 1/min : +- 15 +
guide sleeve		rack travel mm : 0.50
travel mm	: 3.62	+ Tolerance mm : +- 0.50

Rated speed rpm : 13	300 +	rack travel mm Tolerance mm	: +- 0.05
		Pressure hPa rack travel mm	: 450
LOW IDLE	+	Tolerance mm	: 2.25 : + 0.15
control lever position degree :		Start interlock	
tolerance degree : +-	+	Rated speed rpm Rated speed rpm	
Setting point w/out bump	per spring +	Check	
Rated speed rpm : 2	250	speed 1/min Check	: > 80
CRT mm min. :>	7.60	speed 1/min	: < 290
Testing:	+	FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm : 3			
rack travel mm :			
Tolerance mm : +-	1.10	Aneroid pressure hPa	: 1000
Rated speed rpm : 4	400 I	Rated speed rpm	
Nated Speed (pill : 4	1	Del. quantity	. 000
		cm3/1000 strokes	: 248.0
TORQUE CONTROL	+	Tolerance	
Rated speed rpm : 10		cm3/1000 strokes	: +- 3.0
rack travel mm : 1		Check tolerance	
Tolerance mm : +-	υ.05 	cm3/1000s.	: +- 6.0
	+	Spreed	
Rated speed rpm : 6		Tolerance	0.0
rack travel mm : 1		cm3/1000 strokes	: 8.0
Tolerance mm : +-	0.10	Check tolerance	. 42.0
Pated speed nom . 8	350 +	c m 3/1000s.	: 12.0
Rated speed rpm : 8 rack travel mm : 1	· · · · · · · · · · · · · · · · · · ·		
Tolerance mm : +-		Aneroid pressure	
Total arrow may	1	hPa	: -
		Rated speed rpm	: 500
ANEROID/ALTITUDE	+	Del. quantity	
COMPENSATOR TEST	+	cm3/1000 strokes	: 143.0
	+	Tolerance	
	+	cm3/1000 strokes	: +- 1.0
SETTING	+	Check tolerance	
S had made in the E		cm3/1000s.	: +- 4.0
·	500 +	Spreed	
Pressure hPa : : : : : : : : : : : : : : : : : : :	3.10	Tolerance cm3/1000 strokes	: 8.0
	0.20	Check tolerance	. 0.0
roterative init	1	cm3/1000s.	: 12.0
Rated speed rpm : 50	500	CIII 57 100001	. 12.0
Pressure hPa :	<u> </u>		
	+	REDUCED QUANTITY	
MEASUREMENT	+		
	+	Aneroid pressure	
Rated speed rpm : 50	· · · · · · · · · · · · · · · · · · ·	hPa	: 1000
Pressure hPa : 2	50 +	Rated speed rpm	: 1050
	•		

Del. quantity cm3/1000 strokes : 168.0

Tolerance

cm3/1000 strokes : +-

2.0

Check tolerance

cm3/1000s.

5.0

STARTING FUEL DELIVERY

Rated speed rpm :

100

Del. quantity cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s.

: + 19.0

LOW IDLE

Rated speed rpm :

350

Rack travel in mm: 5.30 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance cm3/1000s.

: +- 6.0

Spreed

Tolerance

cm3/1000 strokes :

8.0

Check tolerance

cm3/1000s.

: 12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.11.97 : 28.11.97 : ISO 4113

Combination No. : 0 402 648 706

Injection pump

Pump designation : PE8P120A320LS7830 EP type number : 0 412 628 844

Governor

Governer design. : RQ350...600/1150PA13

: 62

Governer no.

: 0 421 801 826

Cust. part No. : 0280744002

Customer-spec. information Customer : MTU : 8V183 Motor Power KW : 441.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

Tolerance °C : +- 2.0

Overflow valve : 1 417 413 077

Inlet press. bar : 2.0

Overflow quantity

min. L/h : 175 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.45 Tolerance mm : +- 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 8-7-2-6-3-5-4-1

Phasing : 0-45-90-135-180-225

: -270-315

Tolerance : +- 0.50

Check

tolerance 'NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.85 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 312.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000S. : +- 4.0

	l quido planyo
Spreed	f guide sleeve f travel mm : 13.50
opi ced	+ Tolerance mm : +- 0.50
Tolerance	+
cm3/1000 strokes : 5.0	+ Rated speed rpm : 748
	+ guide sleeve
Check tolerance	† travel mm : 7.15
cm3/1000s. : 9.0	+ Tolerance mm : $+$ 0.10
And the second state of th	+
	CUITAE OLEFUE DOCTETAN
Rated speed rpm : 350	GUIDE SLEEVE POSITION
Rated speed rpm : 350	I
Rack travel in mm : 4.00	- control lever
Tolerance mm : + 0.10	position degree : 105
Del. quantity	+ Rated speed rpm : 850
cm3/1000 strokes : 19.0	+
Tolerance	+ Rack travel in mm : 18.00
cm3/1000 strokes : $+$ 3.0	+ Tolerance mm : +- 0.80
Check tolerance	+
cm3/1000s. : +- 6.0	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1000 strokes : 8.0	Total aread may 1150
Check tolerance	+ Rated speed rpm : 1150 + Aneroid pressure
cm3/1000s. : 12.0	+ hPa : 2000
. 72.0	+ Del. quantity
	+ cm3/1000 strokes : 312.0
(B) SETTING OF INJECTION PUMP	+ Tolerance
WITH GOVERNOR	+ cm3/1000 strokes : + 1.0
	+ Check tolerance
	+ cm3/1000s. : + 4.0
GUIDE SLEEVE TRAVEL	+ Spreed
Dated aread area 4200	+ Tolerance
Rated speed rpm : 1208	+ cm3/1000 strokes : 5.0
guide sleeve travel mm : 7.54	+ Check tolerance + cm3/1000s. : 9.0
Tolerance mm : +- 0.15	T (11137 10003 9.0
Total de initi	
	1
Rated speed rpm : 350	
Rated speed rpm : 350 guide sleeve	
Rated speed rpm : 350 guide sleeve travel mm : 3.25	CONTROL LEVER
guide sleeve	CONTROL LEVER control lever
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20	CONTROL LEVER control lever position degree : 101.0
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150	CONTROL LEVER control lever
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : +- 0.10 Rated speed rpm : 685	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : +- 0.10 Rated speed rpm : 685 guide sleeve	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5
guide sleeve travel mm : 3.25 Tolerance mm : +- 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : +- 0.10 Rated speed rpm : 685	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05 Tolerance mm : + 0.10 Rated speed rpm : 507	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : +- 15
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05 Tolerance mm : + 0.10 Rated speed rpm : 507 guide sleeve guide sleeve : 507 guide sleeve	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : +- 15 rack travel mm : 0.50
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05 Tolerance mm : + 0.10 Rated speed rpm : 507 guide sleeve travel mm : 507 guide sleeve travel mm : 5.26	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : +- 15 rack travel mm : 0.50 Tolerance mm : 0.50
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05 Tolerance mm : + 0.10 Rated speed rpm : 507 guide sleeve guide sleeve : 507 guide sleeve	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : +- 15 rack travel mm : 0.50
guide sleeve travel mm : 3.25 Tolerance mm : + 0.20 Rated speed rpm : 1150 guide sleeve travel mm : 7.20 Tolerance mm : + 0.10 Rated speed rpm : 685 guide sleeve travel mm : 7.05 Tolerance mm : + 0.10 Rated speed rpm : 507 guide sleeve travel mm : 507 guide sleeve travel mm : 5.26	CONTROL LEVER control lever position degree : 101.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 13.80 Rated speed rpm : 1195 Tolerance 1/min : +- 5 rack travel mm : 4.00 Rated speed rpm : 1330 Tolerance 1/min : +- 15 rack travel mm : 0.50 Tolerance mm : 0.50

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Rated speed rpm	: < 280
Check	. > 250
speed 1/min Check	: > 250
speed 1/min	: < 290
EUEL DELTUEDY CHA	DACTEDICTICS
FUEL DELIVERY CHA	RACIERISTICS
	,,
Aneroid pressure hPa	: 2000
Rated speed rpm	: 750
Del. quantity cm3/1000 strokes	. 700 0
Tolerance	: 309.0
cm3/1000 strokes	: 3.0
Check tolerance cm3/1000s.	: 6.0
CIIIS/ TUUUS.	; +- 0.0
A	
Aneroid pressure	: -
Rated speed rpm	: 500
Del. quantity cm3/1000 strokes	: 121.0
Tolerance	: 121.0
cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: +- 4.0
Spreed	. +- 4.0
Tolerance	
cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Del. quantity cm3/1000 strokes	: 330.0
Tolerance	. 550.0
cm3/1000 strokes	: +- 15.0
Check tolerance cm3/1000s.	: +- 19.0
LOU TOLE	
LOW IDLE	
Rated speed rpm	: 350
Rack travel in mm	
Tolerance mm Del. quantity	: +- 0.10
cm3/1000 strokes	: 19.0

Rated speed rpm : > 260

Tolerance cm3/1000 strokes	: +-	3.0
Check tolerance cm3/1000s.	: +-	6.0
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	8.0
cm3/1000s.	:	12.0

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 01.12.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 648 785

Injection pump

Pump designation : PE8P120A320LS7844 EP type number : 0 412 628 860

Governor

Governer design. : RQV350...1050PA1318

Governer no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information Customer : MB-NFZ
Motor : 0M442 LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0 : 40

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity min. l/h : 130 Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 bar

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315 Tolerance : +- 0.50

Check

tolerance $^{\circ}NW$: +- 0.75

Start of delivery mark

Tolerance : +- 0.10

Check

: +- 0.75 tolerance °NW

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30 Tolerance mm : +- 0.05

4	- guide sleeve
Del. quantity cm3/1000 strokes : 272.0	travel mm : 3.62 Tolerance mm : +- 0.25
Tolerance cm3/1000 strokes : + 1.0	- Rated speed rpm : 1204 - guide sleeve
Check tolerance cm3/1000s. : + 4.0	- travel mm : 10.00 - Tolerance mm : +- 0.25 -
Spreed	- Rated speed rpm : 1300 - guide sleeve
Tolerance cm3/1000 strokes : 5.0	- travel mm : 11.50 - Tolerance mm : +- 0.50
Check tolerance cm3/1000s. : 9.0	- GUIDE SLEEVE POSITION
750	control lever position degree : - 1
Rated speed rpm : 350	- Rated speed rpm : 1174
Rack travel in mm: 5.00 Tolerance mm: + 0.10 Del. quantity	Rack travel in mm : 11.00 Tolerance mm : +- 1.30
cm3/1000 strokes : 19.0	
Tolerance + 3.0 + 4	- FULL LOAD DELIVERY AT FULL LOAD STOP
Check tolerance	- Rated speed rpm : 1050
cm3/1000s. : + 6.0	- Aneroid pressure
Spreed + Tolerance +	- hPa : 1800
cm3/1000 strokes : 6.0	- Del. quantity - cm3/1000 strokes : 272.0
Check tolerance	- Tolerance
cm3/1000s. : 10.0	- cm3/1000 strokes : +- 1.0
1	- Check tolerance - cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP	- Spreed
WITH GOVERNOR	- Tolerance
	- cm3/1000 strokes : 5.0 - Check tolerance
GUIDE SLEEVE TRAVEL	- cm3/1000s. : 9.0
Rated speed rpm : 1106 guide sleeve	
travel mm : 8.02	- CONTROL LEVER
Tolerance mm : \leftarrow 0.15	
Rated speed rpm : 350	control lever
Rated speed rpm : 350 + guide sleeve +	- position degree : 120.0 - tolerance degree : +- 4.0
travel mm : 1.48	•
Tolerance mm : + 0.20	RATED SPEED
Rated speed rpm : 900	rack travel mm : 14.30 Rated speed rpm : 1095
guide sleeve	Tolerance 1/min : +- 5
travel mm : 5.69 +	
Tolerance mm : \leftarrow 0.25	rack travel mm : 4.00 Rated speed rpm : 1190
Rated speed rpm : 580	Tolerance 1/min : +- 15
1	

rack travel mm 0.50 Tolerance mm : **←** 0.50 Rated speed rpm 1300 LOW IDLE control lever position degree 64.0 tolerance degree : +-4.0 Setting point w/out bumper spring Rated speed rpm 250 CRT mm min. 7.00 : > Testing: Rated speed rpm 350 5.00 rack travel mm Tolerance mm : + 0.10Rated speed rpm 450 TORGUE CONTROL Rated speed rpm 1050 15.30 rack travel mm Tolerance mm : +- 0.05 800 Rated speed rpm rack travel mm 15.30 : +- 0.10Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm 500 Pressure hPa MEASUREMENT Pressure hPa 700 4.80 rack travel mm : +- 0.20Tolerance mm 180 Pressure hPa 0.40 rack travel mm Tolerance mm : +- 0.05 Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 270 Check speed 1/min : > 80 Check speed 1/min : < 290 FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa 1800 Rated speed rpm 800 Del. quantity cm3/1000 strokes : 274.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.: +- 6.0 Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 140.0 Tolerance cm3/1000 strokes : +-Check tolerance cm3/1000s.4.0 REDUCED QUANTITY Aneroid pressure hPa 1800 Rated speed rpm 1050 Del. quantity cm3/1000 strokes : 206.0 Tolerance cm3/1000 strokes : +- 1.5Check tolerance cm3/1000s.: +-4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 270.0 Tolerance cm3/1000 strokes : +- 10.0Check tolerance

: +- 14.0

cm3/1000s.

LOW IDLE

Rated speed rpm	:	350	
Rack travel in mm Tolerance mm Del. quantity	: : +-	5.00 0.10	
714600	:	19.0	
cm3/1000 strokes Check tolerance	: +-	3.0	
cm3/1000s.	: +-	6.0	
Spreed Tolerance			
Check tolerance	:	6.0	
cm3/1000s.	:	10.0	